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THE JOURNAL

OF THE

American Medical Association

Subscription, $7.00 | PUBLISHED WEEKLY | Single Copies, 25 Cents

VOLUME 111, No. 26 | COPYRIGHT, 1938, BY AMERICAN MEDICAL ASSOCIATION 535 North Dearborn Street, Chicago, Ill. | DECEMBER 24, 1938

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By Max Cutler, M.D., Associate in Surgery, Northwestern University Medical School, Chicago, Associate Consulting Cancer Expert, Cook County Hospital, Chicago, Cancer Institute, Chicago, Cancer Institute, Chicago, Cancer Institute

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THE JOURNAL of the American Medical Association is published weekly by the American Medical Association, 535 North Dearborn Street, Chicago, Ill. Subscription price, $7.00 a year, 25c a copy. Canadian $8.50, Foreign $11.00. Entered as second class matter June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879.

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 111, NO. 26 — COPYRIGHT, 1938, BY AMERICAN MEDICAL ASSOCIATION — CHICAGO, ILLINOIS — DECEMBER 24, 1938

ALLERGY IN CHILDHOOD

III. ITS ONSET AND NATURAL PROGRESS

BRET RATNER, M.D.
NEW YORK

Many factors that enter into the problem of the initiation of allergy have been considered in a previous paper of this series in which the various modes of acquisition were treated.[1] Here attention will be directed mainly to certain observations relative to the early beginnings and the natural course that allergy follows with increasing age. I have limited my observations to the four major syndromes eczema, asthma, hay fever and urticaria. A correlation of such observations, I believe, will help in the early diagnosis of these conditions and, if properly treated, should tend to abort further progress of the allergic syndromes.

THE ONSET

Practically all students concerned with allergy in adults find that from 50 to 60 per cent of their patients give a history of onset in childhood. The early careful observations of the beginnings of allergy, however, were first made by pediatricians, among whom should be mentioned Schloss,[2] Talbot[3] and Blackfan.[4]

In a series of 250 allergic children, my associates and I found that 50 per cent had symptoms in the first year; by the fifth year 80 per cent manifested syndromes, and between the eighth and tenth years allergy was already established in practically all our patients.

A direct approach to the study of the onset of allergy can best be served by an analysis of the group of allergic infants who were under 1 year of age. The family history was positive in only 52 per cent of the cases, indicating that there are just as many infants without an allergic family history who have an early onset of allergy as those with a positive history.

Cooke and his co-workers[5] adduced from their studies that the greater the degree of inheritance, the earlier will be the onset of allergic phenomena. The studies of Cooke, however, were largely concerned with adults, the majority of whom suffered from hay fever. Studies on asthma by Bray,[6] Peshkin[7] and O'Keefe[8] dealing exclusively with children and our own observations on general allergy in childhood lead us to conclude that the age of onset is not as strongly influenced by heredity as is generally believed. It cannot be denied that there are more affected children in a small percentage of families (in our series in about 12 per cent) with a strong familial allergic tendency than in those in which this tendency is absent. While one may have to admit that a greater susceptibility for allergy does exist in certain children, it does not appear that the actual age of onset is influenced solely by genetic factors.

In the infants under 1 year of age, eczema was the presenting syndrome in 90 per cent. The remaining 10 per cent suffered from asthma. Though of the cases recorded the youngest patients with asthma were respectively 14 and 28 days old,[9] this early onset apparently is not the rule. Of our patients with asthma under 1 year of age, the average age at onset was 7.3 months. As I shall show presently, however, the overwhelming majority of cases start after the first year. As compared with asthma, there is a striking difference in the age at onset of eczema in infants under 1 year, which was 1.9 months. It is also interesting to note that the average age at the time of observation was 6.5 months for the patients with eczema and 9.6 months for patients with asthma under 1 year. It is apparent from these figures that eczema is the prevailing allergic condition in infancy and that it starts considerably earlier than any other syndrome. This is not a signally new observation; as a matter of fact, it is generally accepted as being axiomatic.

We found a surprisingly high degree of cutaneous reactivity among our patients under 1 year.

Some of the youngest patients for whom positive cutaneous reactions were reported were those of Balyeat,[10] who tested 119 normal newborns with egg, milk and wheat at 3 days of age. For one infant he obtained a four plus reaction to wheat which lasted one hour and ten minutes. Another gave an unquestionable three plus reaction to egg which persisted for fifty minutes. Smyth and Bain[11] found no positive reactions among 125 normal newborns. This is not surprising, for Peshkin and Rost[12] found only 10 per cent doubtful

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Read before the Section on Pediatrics at the Eighty-Ninth Annual Session of the American Medical Association, San Francisco, June 15, 1938.

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8. O'Keefe, E. S.: An Analysis of Three Hundred Cases of Asthma in Children, New England J. Med. 214:642-645 (Jan. 9) 1936.

9. Salter, Hyde: Asthma, New York, William Wood & Co., 1882.

10. Balyeat, R. M.: The Hereditary Factor in Allergic Diseases, Am. J. M. Sc. 176:332 (Sept.) 1928.

11. Smyth, F. S., and Bain, Katherine: The Direct Skin Test in Allergy, J. Allergy 2:316-327 (July) 1931.

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or positive reactions in a large group of normal children, the youngest group being between 2 and 5 years of age. Blackfan [13] found only one positive cutaneous reaction among forty-three normal individuals, that one instance occurring in an infant 9 weeks of age.

Balyeat's finding, which must be regarded as extremely fortuitous, however, is of importance, for it indicates that a positive reaction can be obtained in a newborn infant, and it must be presumed, as Balyeat himself suggests, that sensitization must have occurred in utero.

Blackfan reports a positive reaction in an allergic child at 5 weeks, Lyon [14] at 6 weeks, Shannon [15] at 8 weeks and Smyth [11] at 11 weeks. In our own series, we had three eczematous infants, one as young as 9 weeks and two who were 12 weeks old, who showed cutaneous sensitivity. Stuart and Farnham [16] infer that hypersensitivity to food proteins tends to be present at birth.

Positive reactions were obtained in 85 per cent of the patients under 1 year of age. While 100 per cent reacted to foods, only 41 per cent reacted to foods alone, whereas 53 per cent reacted to foods, inhalants and contactants and 6 per cent reacted to these and pollens in addition.

Sensitivity to foods is a common observation of those working with infants. In fact, the preponderance of positive reactions to food tests in the first year has led certain investigators to suggest that the infants become sensitive when these foods are eaten. Smyth [17] aptly takes objection to this point of view. Egg white, which stands first in order of frequency in positive reactions, is not introduced into the diet as early, nor in the same quantity, as is cow's milk, to which many fewer infants react.

Our concept of active intra-uterine sensitization—owing to the passage of undigested food protein from the maternal blood stream to the fetal circulation by way of the placenta—offers a plausible explanation for those cases of food reactors who have never eaten the food prior to being tested, or for those who manifest allergic reactions the first time the food is consumed. This concept, which I [18] voiced in 1928, has corroboration in the earlier observations of Schloss and Worthen,[19] Blackfan [4] and many others, who report cases in which positive reactions to egg white were obtained in infants who had never eaten eggs. Schloss [20] observed that in sixteen cases out of thirty-three symptoms developed the first time some food was eaten, and similar cases were also reported by Blackfan.[4]

The preponderance of sensitivity to egg white in these congenitally sensitized infants can be assumed to be due to its consumption by the pregnant woman in relatively large amounts (often in a raw or partially cooked state), to its low molecular weight and to its low coefficient of digestibility.

Even more convincing than infants sensitive to egg are those young infants who react to nuts, fruits and vegetables, which foods, by the farthest stretch of the imagination, could not be presumed to have been ingested by them.

In the paper written by Lyon [14] in 1928, which appeared shortly after my article on the influence of the antepartum diet on allergy in infancy, a case is described of an infant 3 weeks old in whom angioneurotic edema developed and at 6 weeks cutaneous reactions to corn and navy beans were positive. The mother gave negative cutaneous reactions. In his paper the author stressed only the possibility that these antigens had come through the breast milk. My interest was aroused by the case and, in subsequent correspondence, I learned from Dr. Lyon that the family lived in the inaccessible rural mountain regions of West Virginia. At times the natives live almost exclusively on corn bread and dried navy beans. He further stated that the mother of the patient subsisted on such a bizarre diet for the last ten weeks of her pregnancy; prior to that time she had partaken of a reasonably good diet. It seems doubtful that the infant could have been sensitized in so short a time from the minute amounts of foreign protein in the breast milk. The more plausible explanation, it seems to me, is that the infant was sensitized in utero.

Another point of interest is that the angioneurotic edema was more probably due to contact of the mother's hands than to the breast milk. This woman made her own corn bread and her hands may have been contaminated with the food proteins, which were thus brought in direct contact with the mammary glands and the infant's skin.

This remarkable case emphasizes the need for testing even young infants with food proteins other than egg, wheat and milk to which many investigators have limited themselves.

Intra-uterine sensitization by no means explains all the cases. Only 55 per cent of our infants gave evidence of such initiation of sensitivity. The remaining 45 per cent must have acquired food sensitivity after birth. Milk and wheat proteins are the early prime offenders. The studies of Schloss [21] so clearly demonstrate the mechanism of intestinal permeability to foods in malnourished and normal infants that the validity of this form of acquisition is unquestioned.

Analysis of a case of idiosyncrasy to milk cited by Talbot [3] can be used to exemplify the development of postnatal sensitization.

> A healthy, exclusively breast fed baby at 8½ months of age was given one bottle of milk formula. This was not given again until three weeks later because the baby had an infection of the middle ear. After recovery the milk formula was tried again but refused by the baby. It was, therefore, fed to him by spoon, but he vomited it. Several further attempts were made to give milk or whey, but vomiting ensued each time. Breast feeding was resumed for one week and was tolerated. Subsequently, 1 ounce (30 cc.) of milk was put into 8 ounces (240 cc.) of cereal gruel and only one teaspoonful of this mixture was given. The baby shuddered and vomited, and within an hour his body was covered with an urticarial eruption. The child was put on goat's milk without further trouble. Six months later, cow's milk was resumed and tolerated.

The factors influencing this mode of sensitization are covered more fully in part II of this series [22] and cannot be gone into at greater length here.

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16. Stuart, H. C., and Farnham, Maryrnia: Acquisition and Loss of Hypersensitiveness in Early Life, Am. J. Dis. Child. 33: 341-349 (Sept.) 1926.
17. Smyth, F. S.; Bain, Katherine M., and Stallings, Minnola: Infantile Eczema, J. A. M. A. 97: 1291-1294 (Oct. 31) 1931.
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19. Schloss, O. M., and Worthen, T. W.: The Permeability of the Gastro-Enteric Tract of Infants to Undigested Protein, Am. J. Dis. Child. 11: 362 (May) 1916.
20. Schloss, O. M.: Allergy in Infants and Children, Am. J. Dis. Child. 39: 433-454 (June) 1930.
21. Schloss, O. M.: The Intestinal Absorption of Antigenic Protein, Harvey Lectures, series 26, 1924-1925, p. 156.
22. Ratner, Bret: Allergy in Childhood: II. Prophylaxis, J. Pediat. 13: 737 (June) 1938.

Although so much stress has been laid on the dominance of sensitivity to egg, which we found in 67 per cent of our cases, this substance could not have been the cause of the allergic manifestation in the infants who were not receiving it in their diet. If egg is not the provocateur of an eczema in the very young and is merely indicative of a potential sensitivity, and if, at the same time, one finds positive reactions to environmental substances, then obviously the latter substances must be causally related to the eczema. Practically in all these cases there was multiple sensitivity (94 per cent). It has been thought that inhalants and contactants begin to play their role much later than foods, but we did not find it so in our patients under 1 year of age; as I have already noted, 53 per cent reacted to inhalants and contactants in addition to foods, and 6 per cent to pollens in addition.

In table 1 are listed some of the reactions obtained in these young infants. As will be noted in several instances, the inhalant-contactant group is the major offender even though reactions to foods are positive. The articles of Peck and Salomon,[23] Hopkins and Kesten,[24] Hill and Sulzberger [25] and others emphasize the

TABLE 1.—*A Group of Cases in Infants Under 1 Year of Age Showing Multiplicity of Sensitivity*

Case	Age, Months	Condition	Positive Reactions
1	3	Eczema	Egg, wheat, silk, and environmental substances
2	4½	Eczema	Egg, milk, vegetables
3	5	Eczema	Egg, milk, contactants
4	6	Eczema	Egg, milk
5	6	Eczema	Orange
6	7	Eczema	Egg, apple
7	9	Eczema	Egg, several vegetables, contactants
8	7	Eczema	Egg, contactants
9	9	Asthma	Egg, inhalants and pollens
10	10½	Eczema	Egg, pea, chicken feathers and cotton linters

important role of environmental substances in the causation of eczema not only through direct contact of the skin but also from inhalation.

The reason that increasing numbers of reactions are being obtained must be attributed to more extensive testing. Instead of limiting ourselves to egg, milk and wheat in these young infants, we tested them with practically all proteins, including direct tests with substances derived from the immediate environment of the infant. Thus we discovered not only immediate offenders but also potential ones.

NATURAL PROGRESS

The discussion thus far has pertained to those infants under 1 year of age. In chart 1 is shown the age of onset for the entire series of 250 children in relation to the major allergic syndromes.

From our experience, it would seem that eczema starts earliest; very few, if any, new eczemas start after the sixth year. While asthma may have its onset at any time during childhood, very few cases appear to start in the first year; the largest number of asthmatic children date their first definite symptoms of dyspnea from the third to the fourth year. The story of hay fever is different; an occasional case may occur in early childhood, but it is only after the sixth year that the incidence of fixed hay fever becomes notable. It is well known that the major number of hay fever sufferers commence their symptoms after puberty, the second decade being the most vulnerable period. However, one cannot be too dogmatic about it, for our studies pertain to the middle Atlantic states, and it must be acknowledged that workers in the great Southwest believe that

TABLE 2.—*Age of Onset and Duration of Various Syndromes Before Seen*

	Age of Onset	Duration Before Seen for Allergy	Average Age of Patient when Seen for Allergy
Eczema.....	0.7 years (3 days-5½ yrs.)	1.8 years (1 wk.-11.9 mos.)	2.5 years
Asthma.....	3.6 years (3 mos.-13 yrs.)	3.9 years (0-14 years)	7.5 years
Hay fever....	7.7 years (9 mos.-17½ yrs.)	3.9 years (0-15 years)	11.8 years
Urticaria....	4.4 years (3 mos.-14 yrs.)	2.3 years (1 mo.-7 years)	6.7 years

Age of onset in eczema-asthma cases: Eczema 0.6 year; asthma 3 yrs.

hay fever may start early in life.[26] Kahn reports that 10 per cent of his patients with hay fever are under 1 year, and in five cases he states that hay fever symptoms existed from birth.

The urticarias appear to jog along sporadically throughout childhood, and, when one recalls the 3 week old infant of Lyon, it is evident that no period is free from this syndrome.

It is of further interest to note (table 2) that the period between the age of onset and the time that medical attention is sought is shortest for eczema (1.8 years) and next in order comes urticaria (2.3 years); the longest periods elapse in the case of asthma and hay fever (3.6 years and 3.9 years respectively). Perhaps because eczema and urticaria are very troublesome and disfiguring patients are brought for treatment earlier than with asthma and hay fever. The latter conditions are difficult to diagnose and sometimes require several years of observation. They are frequently wrongly diagnosed

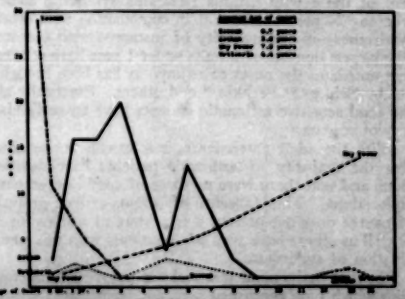

Chart 1.—Showing influence of the allergic syndrome on age of onset.

and treated as common colds, recurrent bronchitis, pneumonia or whooping cough.

The average age of the patient at the time of study is youngest for eczema and oldest for hay fever.

23. Peck, S. M., and Salomon, Gustav: Eczema of Infancy and Childhood: I. Contacts as Etiologic Agents, with Particular Reference to Feathers, Am. J. Dis. Child. 46: 1308-1328 (Dec.) 1933.

24. Hopkins, J. G., and Kesten, B. M.: Allergic Eczema, Am. J. Dis. Child. 49: 1311-1330 (June) 1935.

25. Hill, L. W., and Sulzberger, M. B.: Evolution of Atopic Dermatitis, Arch. Dermat. & Syph. 28: 451-463 (Sept.) 1933.

26. Kahn, I. S.: Significance of Negative Skin Tests in Pollen Hay Fever and Asthma in Infants and Young Children: Treatment, South. M. J. 21: 539-543 (July) 1928. Balyeat, R. M.: Allergic Manifestations in Children Based on the Study of Four Hundred Eighty-Two Cases, ibid. 24: 769-774 (Sept.) 1931.

The progress of the allergic conditions is interestingly delineated in charts 2 and 3. Here is shown the distribution of the allergic conditions among 250 children (chart 2) and among 315 adult allergic antecedents

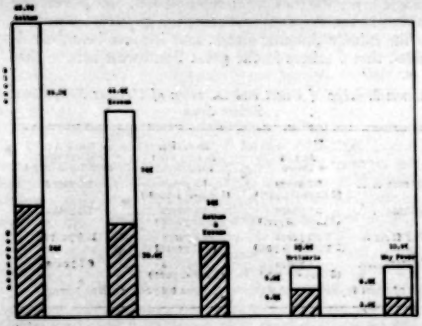

Chart 2.—Distribution of major syndromes among 250 allergic children either alone or combined with other syndromes.

(chart 3). The majority of children (63.2 per cent) suffer from asthma, as do the majority of adults (53 per cent). Among the children, however, only 39.2 per cent of those with asthma have this syndrome alone, whereas 24 per cent have it in combination with other syndromes—in the majority of instances with eczema. The largest number of infants under 1 year have eczema that antedates the onset of asthma, as has been brought out by Schloss,[26] Peshkin [27] and others. Practically all the food sensitive asthmatic patients gave an early history of eczema.

With the adult antecedents, it is interesting to note that the majority of asthmatic patients have asthma alone and that there were no cases of combined eczema and asthma. This (absence of eczema-asthma group) of course does not present a true state of affairs for I as well as others have seen adult patients with this combination of syndromes.

But it is the general trend of the progress of allergy with which I am concerned here, and comparing the two charts one sees that eczema, which is a dominant syndrome in childhood, particularly in infancy and earliest childhood, plays a lesser role as age advances. Hay fever, on the other hand, is of comparatively little significance in early childhood—particularly in the middle Atlantic states—and shows a definite rise as the age of the patient increases. The large number of hay fever sufferers among the adult antecedents is indicative of the trend. As I have already indicated, urticaria occurs sporadically, and from my own experience presents no significant trend in relation to age. Pure asthma remains the major form of allergy both in childhood and in the adult period. A rather interesting observation to be derived from our studies is that, in those cases which manifest more than one syndrome, asthma is generally present, and, in view of the preponderance of pure asthmatic cases it would appear that phylogenetically the human subject resembles the guinea pig in that the lung structure seems to be the predominantly reactive organ.

An analysis of the reactivities that allergic children manifested is drawn in chart 4. A larger number of food reactions occur in the youngest patients, although environmental substances begin to show reactions in the young and after the second year almost parallel food reaction. This picture is somewhat different from the observations of Stuart and Farnham,[10] who in discussing the acquisition and loss of hypersensitiveness in early life conclude that hypersensitiveness to food proteins tends to be present at birth and is gradually lost during childhood, whereas hypersensitiveness to inhalant proteins tends to be acquired during the middle period of the first decade and is more resistant to change. Bullen,[28] as well, has found that inhalants play a more prominent role in childhood than is generally thought.

TABLE 3.—*Allergenic Sensitivity in Relation to the Allergic Manifestations*

	Non-sensitive	Foods	Inhalants-Contactants	Pollens	Foods and Inhalants-Contactants	Foods and Pollens	Foods, Inhalants-Contactants, Pollens	Inhalants-Contactants, Pollens
Eczema	14.3%	40.0%	5.7%	.....	31.4%	.....	8.6%	.....
Pure asthma	14.6%	11.5%	22.9%	0%	39.0%	3.6%	9.0%	0%
Asthma, eczema	5.7%	2.9%	5.6%	2.9%	68.5%	5.7%	20.1%	2.9%
Pure hay fever	.....	.....	.....	91.3%	.....	.....	.....	8.7%
Urticaria	42.9%	.....	14.3%	.....	28.6%	.....	14.3%	.....
Asthma, urticaria	21.3%	.....	33.3%	.....	31.3%	.....	.....	.....
Asthma, eczema, urticaria	.....	.....	.....	.....	66.7%	.....	33.3%	.....
Asthma, eczema, hay fever	.....	.....	.....	.....	.....	.....	50.0%	50.0%
Asthma, hay fever	.....	.....	25.0%	.....	.....	.....	75.0%	.....
Asthma, hay fever, urticaria	Too few cases							
Asthma, eczema, urticaria, hay fever								
Eczema, urticaria								

Peshkin [29] emphasizes this point, asserting that 98 per cent of his allergic children were sensitive to one or more substances of the inhalant group. This would

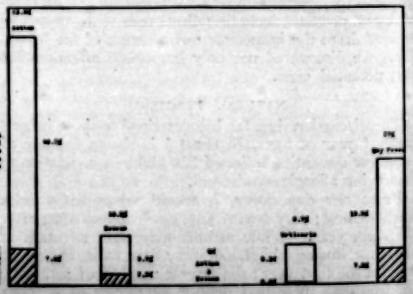

Chart 3.—Distribution of major syndromes among 315 adult antecedents.

indicate that a child exhibiting protein sensitization nearly always is sensitive to some inhalant. Peshkin states that this observation is somewhat at variance with

27. Peshkin, M. M.: Asthma in Children: II. The Incidence and Significance of Eczema, Urticaria and Angioneurotic Edema, Am. J. Dis. Child. 32: 862-871 (Dec.) 1926.

28. Bullen, S. S.: Some Observations on the Natural History of Asthma in Childhood, New York State J. Med. 29: 543 (May 1) 1929.

29. Peshkin, M. M.: Asthma in Children: I. Etiology, Am. J. Dis. Child. 51: 763-814 (June) 1936.

the earlier views that food sensitization was more commonly met than any other group. From Australia comes further supporting evidence by Barlow,[30] who states that environment has been rather underestimated as a factor in determining sensitization. In childhood,

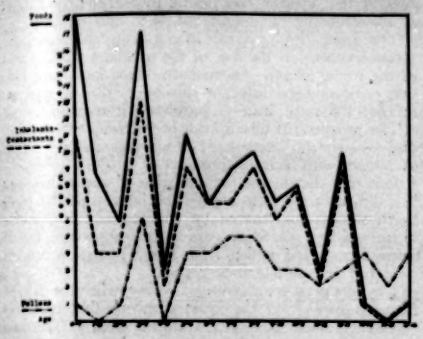

Chart 4.—Showing distribution of positive cutaneous reactions at the different ages: One hundred and nineteen patients reacted to foods, ninety-three to inhalants-contactants and forty-four to pollens.

the patient will often prove to be sensitive to food as well as to inhalant proteins, but only rarely are foods the main allergic factors.

In our series, pollens began to cause reactions at a later period than either foods or inhalants and contactants.

A further analysis of the distribution of these various reacting substances is presented in chart 5.

The relation that the allergenic sensitivity bears to the allergic manifestations is summarized in table 3. Among the patients with eczema, 40 per cent react to foods alone and 5.7 per cent to epidermals alone, the remainder reacting to a combination of foods, inhalants, contactants and pollens. With asthma, 11.5 per cent react to foods alone and a higher percentage (22.9) to inhalants. With the eczema-asthma group, 2.8 per cent react to foods alone, 5.6 per cent to inhalants alone and the overwhelming majority to various combinations. It is noteworthy that among patients with hay fever 93.3 per cent react to pollens alone, and 6.7 per cent to pollens and inhalants, which suggests that certain patients with hay fever, even in childhood, will not do well if tested and treated for pollen sensitivities alone.

These observations show clearly that, except for the youngest patients with eczema, who may be preponderantly sensitive to foods alone, the allergic patient must be suspected of being sensitive to multiple allergens in the various groups.

COMMENT

The varying criteria employed by different investigators make it difficult to compare our results with those of other students. For example, the fact that certain investigators limit themselves to the use of a few test substances whereas we have tested with all available proteins makes a comparison of results with respect to cutaneous reactivities meaningless.

Probably the greatest criticism that can be leveled against the present study, as well as others of a similar nature, is the fact that children of varying ages have been grouped together and conclusions have been drawn as representative of childhood. To be really valid, an adequate number of cases at each age level should be studied. Each case should be studied with as many test materials as possible. Since such studies entail a vast amount of detail, and since the cases available to any single investigator are limited, it may be useful to collect material from several clinics. Conclusions drawn from data thus collected and properly collated would be of great value.

Failing such an ideal study it is useful at times to take stock of available observations, which may yield helpful suggestions.

That allergy can actually be manifested in the newborn and be present in the young infant under 1 year is of significance, for it must arouse in the physician a much keener appreciation for the need of early diagnosis. When one realizes that a large percentage of allergic adults first manifested symptoms in childhood, it is apparent that improperly diagnosed and untreated cases may persist for unnecessarily long periods.

That eczema is a forerunner of asthma in many instances is a fact that is known to all interested in this field and should become common knowledge to all physicians. More dermatologists today have an awakened interest in this subject and no longer regard these endermal manifestations as topical diseases but stress their constitutional nature (Hopkins and Kesten, Hill and Sulzberger, Peck and Salomon and others). It is true that infantile eczema must be treated locally,

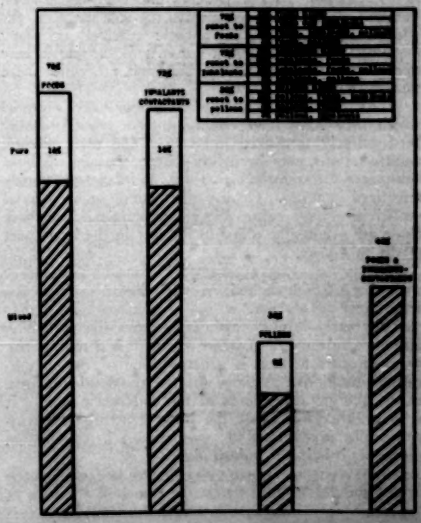

Chart 5.—Showing general distribution of positive cutaneous reactions.

but it is equally true that, unless the underlying reasons for the existence of the eczema are determined, recurrences and exacerbations must surely follow, and possibly the development of asthma.

One must also be alert to the early beginnings of respiratory allergy. In many instances, it is ushered in not by previous eczema but by recurrent episodes of

30. Barlow, D. L.: Asthma in Children, M. J. Australia 1:4 (Jan. 1) 1938.

sneezing, lacrimation, rhinitis and attacks of coughing. The early episodes will perforce be treated symptomatically, but if these recur time and again the more serious allergic manifestations—asthma and hay fever—must be thought of.

Valid objections may be raised to the limited approach taken in the analysis of these cases, but I might state here that a discussion of all the other phases of the study of these cases relative to anamnestic data, eosinophil studies, the criteria employed in diagnosis, the psychogenic factors and the unreliability of the cutaneous test would have led us too far afield. These phases will be considered elsewhere. It will also be noted that I have made no attempt to discuss the intriguing question of prognosis for the reason that I was not concerned here with the progress of the individual case.

CONCLUSIONS

No dogmatic conclusions can be drawn with respect to the onset and progress of allergic syndromes in childhood. This is due to the fact that our knowledge of the underlying mechanism of allergy is still far from complete.

It is apparent that allergy may start at an extremely early age. The newborn period is signally free, with the rare exception of an occasional instance of passive sensitization acquired in utero.

Eczema is the prevailing allergic syndrome in infants under 1 year of age, and foods are the prevailing reacting substance. Though food sensitivities were found in 100 per cent of our patients under 1 year of age, they are nevertheless not always the sole cause of the allergic syndrome. The allergic eczemas in many instances (59 per cent) are shown to be due largely to contact with environmental substances to which these same infants react.

Infants who react to egg and other food proteins which they have never ingested have most probably been actively sensitized in utero. The early allergic manifestations may be invoked by a passage of these substances through the breast milk in infants previously sensitized in utero. On the other hand, such potential sensitivities may cause allergic reactions when these foods are eventually added to the diet in the latter part of the first year.

The age of onset of eczema is considerably earlier than that of asthma and, in many instances, it is the forerunner of asthma.

After early infancy, asthma becomes the prevailing allergic syndrome, and wherever there is a multiplicity of syndromes asthma is generally one of the complicating conditions. Asthma was also the dominant form in the allergic antecedents of the children studied. It appears, therefore, that the lung structure is phylogenetically predisposed to sensitization in the human species as it is in the guinea pig.

Hay fever is not of great significance in early infancy in the middle Atlantic states. It comes to the fore in the latter part of the first decade and becomes a prominent syndrome in the second decade of life.

Urticaria at all times remains sporadic and shows no particular age alinement.

Though food sensitivities play a very important role in the allergy of childhood, inhalants and contactants play an equally important one. Throughout infancy and childhood reactions to foods and inhalants and contactants run a parallel course. There are many infants and children who react to pollens who do not suffer from hay fever. The pollens may be contributing factors in the eczema or asthma, or they may indicate potential sensitivities which eventually cause the onset of hay fever.

The preponderance of multiple reactivities would suggest that specific therapeutic measures may fail if all the offending factors are not taken into account.

The onset of allergy can in a measure be prevented through control of the diet of the pregnant woman and of the young infant. Cognizance of the important role that environmental inhalant substances play in earliest infancy too must lead to prophylactic measures.

The progress of allergy can be interrupted by early diagnosis of the interrelated syndromes and reduction of contact with inciting substances.

It is true that in the present state of our knowledge it is difficult actively to engage the interest of the physician who is unprepared by training and equipment in this subject, which appears to be complicated by so many factors and which from many reports seems to yield but few satisfactory results.

The time must soon arrive, however, when the salient facts, gleaned from the maze of work that is being carried on, will be separated from the chaff and formulated into broad principles that can be more readily applied in general everyday practice.

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ABSTRACT OF DISCUSSION

Dr. Milton B. Cohen, Cleveland: It is interesting to me, an allergist interested in pediatrics, to hear a paper by Dr. Ratner, a pediatrician interested in allergy, and to find that there is no essential disagreement in our points of view. This arises, I believe, from the fact that as clinicians study any disease, no matter what discipline they bring to the study originally, they ultimately arrive at certain general conclusions which are in agreement. This paper calls attention to the fact that the pediatrician is the one who is going to see the earliest manifestations of allergy and going to see the child at a time when certain destructive processes produced by long-standing disease may be prevented. It is very important that one think of allergy not as asthma or hay fever or allergic rhinitis or urticaria, but as a clinical condition which may manifest itself anywhere in the child economy and that one follow it wherever it goes and treat it accordingly. Therefore, it doesn't make a great deal of difference whether in your practice the statistics vary slightly from Dr. Ratner's or whether in my practice they do. The important thing is that this condition should be recognized early. It can be recognized early and, if it is managed early, many of the changes which occur in adult life may be avoided.

Dr. Tell Nelson, Evanston, Ill.: I am in accord with what Dr. Ratner has pointed out. That allergy is common in infancy and childhood cannot be discounted. But, unfortunately, it is often minimized and frequently overlooked. Dr. Ratner stated that between 50 and 60 per cent of adults date their allergy from early childhood. In a series compiled some years ago, I found that in 66 per cent of all my cases the allergic symptoms had started before 20 years of age. It is interesting that in the first decade twice as many males develop allergic manifestations as females. In this study I took into consideration eczema, asthma and hay fever, including in hay fever the hypersensitive rhinitis type of manifestation. What the difference in sex means, I am not ready to state. I was happy to hear Dr. Ratner stress the inhalant factors in addition to the foods in infants and children. I find inhalants as important in early infancy as foods. Dr. Ratner also mentioned the finding of hay fever, of pollen sensitivity, as starting early in life and being very gradual, beginning to manifest itself in a fairly good proportion along about 6 years of age. He stated that this was probably due to the fact that their cases may differ somewhat because of location. In the Middle

West I find a goodly proportion of my patients definitely pollen sensitive quite early in life. I can't give exact figures, but in my own practice and in the clinics a large percentage of children manifest definite hay fever symptoms at 2 and 3 years of age. It is only by careful study of children who manifest frank allergic symptoms and the recognition of those children who manifest early stigmas of the allergic constitution that it will be possible to manage this type of individual better and avoid the trouble which will appear later in life.

RENAL TUBERCULOSIS: PROGNOSIS FOLLOWING NEPHRECTOMY

BASED ON PREOPERATIVE OBSERVATIONS IN THE "GOOD" KIDNEY

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AND
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The indications for nephrectomy in the presence of renal tuberculosis are commonly discussed. Opinion on this subject is unsettled, partly because of lack of agreement concerning the pathogenesis of the disease. One group of investigators, following Medlar's teaching, feels that renal tuberculosis always begins with bilateral involvement, while another group maintains that it begins in most cases as a unilateral infection. This argument has academic interest, but the patient desires only to be relieved of his symptoms and to have his life prolonged.

Generally speaking, four clinical methods can be employed to investigate a kidney in the presence of this disease: (1) urography, (2) determination of the amount of pus present in the specimen of urine obtained by ureteral catheterization, (3) inoculation of guinea pigs with the specimen of urine obtained by ureteral catheterization, and (4) an attempt to demonstrate the bacilli of tuberculosis in stained smears of the specimen of urine obtained by ureteral catheterization. Past experience has taught that none of these tests are infallible; therefore it may be said that in renal tuberculosis it is impossible to prove clinically that one kidney is free of infection. Nevertheless, all the tests are valuable and the question today is how many of these tests should be employed and the finding of what manifestations relative to the so-called uninvolved kidney should be insisted on before subjecting the patient to removal of the involved kidney. It would seem that the most practical approach to this problem would be to study the postoperative results in a large group of cases of renal tuberculosis in which nephrectomy had been performed. By grouping these cases according to the method of investigation and according to the observations obtained in relation to the so-called uninvolved kidney, a comparative analysis of the operative results should be possible and should help to solve this problem. We have attempted to carry out this plan of study in the analysis of a series of cases and trust that further analysis of the results will be of some practical value. For brevity we shall refer in this paper to the diseased kidney that was removed at operation as the "bad" kidney, while the so-called uninvolved kidney will be spoken of as the "good" kidney. Also for brevity it will be said herein that "guinea pigs were positive" or "negative" rather than that "the result of inoculation of guinea pigs was positive" or "negative."

We have studied the records of 1,131 consecutive patients on whom nephrectomy was performed for renal tuberculosis at the Mayo Clinic between the years 1912 and 1932 inclusive. The results in these cases have been studied from the standpoint of the observations obtained in the clinical investigation of the good kidney prior to operation. No attention has been paid to the condition of the bad kidney which was removed or to the type of surgical technic employed. Pathologic conditions outside the urinary tract, both tuberculous and nontuberculous, have been disregarded as they are probably evenly distributed among the artificial groups we have made for comparison and would therefore not seriously affect the analysis. No patients were studied who were operated on after 1932, in order that all cases might be studied from the standpoint of at least five year survival. Of the 1,131 patients, 453 were known to be dead. To the remaining 678 patients letters of inquiry were sent, answers to which were received in more than 70 per cent of cases. In many of the cases in which replies were not received, as well as in many of those in which the patients were known to be dead, the records contained previous correspondence, including replies to questionnaires of previous years, which supplied considerable information. In our letter of inquiry we asked the patient if, and to what extent, his vesical trouble had improved since his operation, and further we requested him to state the number of times he found it necessary to void both day and night and the amount of pain or burning that accompanied urination. Inquiry also was made as to the state of his general health. From the information obtained, the following classification of results was formulated:

1. Patients dead. Information on this group also included the date of death.

2. Patients cured. Only those patients who were entirely free of all vesical symptoms were included in this group.

3. Patients improved. These were patients whose vesical symptoms had improved since operation but vesical symptoms of some kind, even though slight, still persisted. The group included patients whose bladders were contracted and whose frequency of urination persisted in spite of microscopically negative urine. It also probably included a generous number of patients in examination of whom, if cystoscopy was done, pathologic change would not be found.

4. Patients unimproved. This group included those whose vesical symptoms were not improved or became worse.

5. Condition unknown. These were patients who at the time of writing this report we knew were still alive but we were unable to ascertain their condition.

Regarding the patients who were dead, no attempt was made to study the cause of death, as such reports are so unreliable in most cases as to be practically valueless from a statistical standpoint. Although we are sure that a large number of these patients died from causes unrelated to their renal tuberculosis, we feel that they were well enough distributed throughout the various groups in this study as not seriously to affect the comparative results. In other reliable reports in the literature are estimates of the mortality that may be expected from tuberculosis elsewhere than in the urinary tract, so that this phase was not studied in our

From the Section on Urology, the Mayo Clinic.
Read before the Section on Urology at the Eighty-Ninth Annual Session of the American Medical Association, San Francisco, June 16, 1938.

series of cases. All percentages recorded in the accompanying tables were based on the number of traced patients as denoted in each table.

A word should be said about the terms "cured" and "improved." It would seem that, if a patient is in good health from ten to twenty years after operation but still complains of moderate frequency of urination, the assumption would be justified that the tuberculous process had been eradicated and the patient probably cured. This interpretation has been used in most statistical papers on renal tuberculosis. We have preferred, however, to list such patients as "improved" only, reserving the term "cured" for complete absence of symptoms referable to the bladder. For this reason, in a comparison of our tables with those of some other authors, a total of our cured and improved patients would more nearly correspond to "patients well" in their reports.

There seems to be little if any preference of the disease for either side, as the right kidney was removed in 602 cases and the left in 529 cases.

AGE

The average age of the patients operated on varied little from year to year during the twenty years of the study. We felt that it would be of interest to determine whether there was any great variation in postoperative results among patients of the various age groups. Table 1 indicates that there was essentially no difference. Although results obtained with patients of the second and seventh decades differed somewhat from the results obtained with patients of the other decades, it must be borne in mind that the patients of these two decades who were traced were too few to yield accurate percentages. The youngest patient operated on was 8 years of age and the oldest 71 years of age.

TABLE 1.—*Comparison of Five Year Results on the Basis of Age by Decades in 1,131 Cases of Renal Tuberculosis in Which Nephrectomy Was Performed, 1912 to 1932 Inclusive*

			Patients Dead		Patients Living							
					Cured		Improved		Unimproved		Condition Unknown	
Decade of Life	Total Patients	Traced Patients	Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced
0- 9	1	1	..	....	1	100						
10-19	47	41	14	34.1	11	26.8	9	30.0	7	17.1	0	0
20-29	291	265	62	23.4	108	40.7	57	21.5	27	10.2	11	4.2
30-39	417	373	86	23.6	159	42.6	66	17.7	33	8.9	27	7.2
40-49	248	227	54	23.8	91	40.1	56	25.5	17	7.5	7	3.1
50-59	119	98	29	29.6	36	36.7	16	16.3	12	12.2	6	6.2
60-69	28	16	10	62.4	4	25.0	1	6.3	1	6.3	0	0
70-79	1	1	..	....	..	....	1	100				

TABLE 2.—*Comparison of Results with Male and Female Patients in 1,131 Cases of Renal Tuberculosis in Which Nephrectomy Was Performed, 1912 to 1932 Inclusive*

Years After Operation	Total Patients		Traced Patients		Patients Dead, per Cent of Traced		Patients Living, per Cent of Traced							
							Cured		Improved		Unimproved		Condition Unknown	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
5	724	407	650	328	30.5	15.1	33.6	58.7	18.4	23.2	12.0	4.7	5.5	3.3
10	505	298	434	250	47.4	36.3	29.0	51.0	14.0	16.6	4.5	2.0	5.5	4.2
15	428	249	335	178	50.1	38.0	38.8	47.2	7.2	15.2	3.6	0	3.3	1.6
20	227	168	175	76	66.3	64.7	25.7	64.7	4.6	7.9	1.1	0	2.3	2.7

As has been stated previously, the primary object of this study was to learn the results of nephrectomy from the standpoint of the preoperative observations obtained in the investigation of the good kidney. We shall include also, however, regarding this rather large group of cases, a few general statistics that should be of especial interest to the student of this subject.

INCIDENCE

The number of cases in which nephrectomy has been performed at the clinic each year since 1912, for renal tuberculosis, indicates a definite reduction in the incidence of this disease. For instance, in the six years 1920 to 1925 inclusive an average of fifty-nine patients with renal tuberculosis were subjected to nephrectomy yearly, whereas in the six years from 1932 to 1937 inclusive the yearly average was only twenty-six. These figures are particularly significant when one considers that the average number of patients admitted to the clinic yearly from 1932 to 1937 inclusive was 9.3 per cent higher than in the six years 1920 to 1925 inclusive.

SEX

The disease affected almost twice as many males as females. Nephrectomy was performed on 724 males and on only 407 females (table 2). The most striking information obtained from this table, however, is the difference in the clinical results following operation in persons of the two sexes. That the disease is far more serious to the male is shown by the fact that in the study of ten year survivals almost twice as many males as females were dead, whereas the incidence of cure among females was strikingly higher than it was among males. The reason for these differences is not obvious but the rather common occurrence of associated genital tuberculosis in the male may be a factor.

POSTOPERATIVE RESULTS FROM THE STANDPOINT OF THE "GOOD KIDNEY"

In this part of the paper are reported matters pertaining to the primary purpose of the study, namely postoperative results from the points of view of the method of investigation applied to, and the clinical results

obtained from, the good kidney prior to operation. The patients were divided into four main groups as follows: Group 1, patients whose good kidney was not catheterized prior to operation. Group 2, patients whose good kidney was catheterized prior to operation, and microscopic examination of the centrifuged ureteral specimen of urine revealed either no pus cells or not more than three pus cells per high power field. Group 3, patients whose good kidney was catheterized prior to operation and microscopic examination of the ureteral specimen of urine revealed from three to ten pus cells per high power field. Group 4, patients whose good kidney was catheterized prior to operation and microscopic examination of the ureteral specimen of urine revealed more than ten pus cells per high power field. We have the good kidney was carried out in 369 cases, or 76.4 per cent of the 483 cases in which operation was performed, whereas between 1920 and 1932 it was carried out in 604 cases, or 93.2 per cent of the 648 cases in which operation was performed. Inability to catheterize the ureter on the good side in the presence of extremely irritable or contracted bladders is another common reason for omission of catheterization.

Table 3 discloses that the mortality rate both five and ten years after operation was much greater in group 1 than it was in group 2 (the group in which the urine was microscopically negative). On the other hand, the mortality rate was about equal to that of groups 3 and 4. From the standpoint of patients cured the difference was not so striking, but there was still

TABLE 3.—*Comparison of Results Based on the Number of Pus Cells Found on Microscopic Examination of the Centrifuged Urine Obtained by Ureteral Catheterization from the "Good" Kidney in 1,131 Cases of Renal Tuberculosis in Which Nephrectomy Was Performed, 1912 to 1932 Inclusive*

Years After Operation	Group*	Total Patients	Traced Patients	Patients Dead		Patients Living							
						Cured		Improved		Unimproved		Condition Unknown	
				Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced
5	1	161	145	50	34.5	49	33.8	24	16.6	14	9.6	8	5.5
	2	802	713	146	20.3	312	43.5	156	21.7	61	8.5	43	6.3
	3	121	108	47	43.5	31	28.8	13	12.0	11	10.2	6	5.5
	4	47	45	15	33.4	9	20.0	11	24.4	8	17.8	2	4.4
10	1	145	121	62	51.2	37	30.6	12	9.9	4	3.3	6	5.0
	2	649	522	182	34.8	207	39.7	87	16.7	21	4.0	24	4.6
	3	103	87	45	51.7	24	27.6	10	11.5	6	6.9	2	2.3
	4	34	25	14	56.0	5	20.0	6	24.0	0	0	0	0

* Group 1, "good" kidney not catheterized. Group 2, "good" kidney catheterized; microscopic examination of urine specimen disclosed from 0 to 3 leukocytes per high power field. Group 3, "good" kidney catheterized; microscopic examination of urine specimen disclosed from 3 to 10 leukocytes per high power field. Group 4, "good" kidney catheterized; microscopic examination of urine specimen disclosed more than 10 leukocytes per high power field.

TABLE 4.—*Summary of Results in 1,131 Cases of Renal Tuberculosis in Which Nephrectomy Was Performed, 1912 to 1932 Inclusive*

Years After Operation	Total Patients	Traced Patients	Patients Dead		Patients Living							
					Cured		Improved		Unimproved		Condition Unknown	
			Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced
5	1,131	1,016	235	23.1	413	40.7	204	20.0	88	8.5	66	6.7
10	901	758	202	40.1	275	36.5	107	14.2	29	3.9	49	5.3
15	606	513	202	51.1	174	33.9	51	9.9	12	2.3	14	2.8
20	333	251	150	59.7	79	31.5	14	5.6	3	0.5	6	2.4

compared these four groups of patients in table 3; no attention was paid to inoculation of guinea pigs or to acid-fast staining. The patients are compared as to postoperative results both five and ten years following operation. In group 1 there were 161 patients. The question may be asked as to why the good kidneys in these cases were not catheterized. The majority of cases in this group are those in which diagnosis was made and operation performed between 1912 and 1920, when cystoscopic instruments and technic had not reached the refinement that has been attained in the last twenty years. In many of these cases cystoscopic examination revealed thick pus exuding from the ureteral orifice on one side and clear urine spurting from the ureteral orifice on the other side; nephrectomy was carried out on the basis of this information only. For instance, in the series of cases in which operation was performed between 1912 and 1920, catheterization of a much larger percentage of cures in group 2, as would be expected. There was a much higher percentage of cures in group 1 than in group 4, which can be explained by the fact that all the good kidneys in group 4 contained considerable amounts of pus, whereas in group 1 a large percentage of kidneys were no doubt secreting microscopically negative urine. One important point must not be overlooked, and that is that 20 per cent of the patients in group 4 (the group in which more than ten cells per high power field were found in the ureteral specimen of urine) were cured ten years after operation. Although the number of patients traced in this group was so small that the percentage had little statistical value, it nevertheless is significant and must be taken into consideration. This will be considered more fully later. When the results in these four groups are compared with the results obtained in the series as a whole, regardless of method of diagnosis

(table 4), the results in group 2 are seen to be considerably better than the average for the entire series.

In an effort to evaluate the importance of investigating the good kidney by inoculation of guinea pigs and acid-fast staining of the urine obtained by ureteral catheterization, group 2, 3 and 4 each was broken down into divisions A, B and C. Division A indicates that guinea pigs were not inoculated and that positive acid-fast stains were not obtained. Division B indicates that guinea pigs were inoculated but that the results were negative and that positive acid-fast stains were not obtained. Division C indicates that either inoculation of guinea pigs or acid-fast stains, or both, were positive. The results in these various divisions of cases are compared in tables 5, 6 and 7. We speak only of acid-fast stains that were positive, because we feel that a negative stain of a catheterized ureteral specimen of urine is of little significance. In table 5 the cases in group 2 (with microscopically negative urine from the good kidney) are considered from the point of view of inoculation of animals and of acid-fast staining. The striking observation is the extremely high mortality in the division in which either positive guinea pigs or positive stains, or both, were obtained (division C) as contrasted with the division in which inoculation of guinea pigs proved negative and positive acid-fast stains were not obtained (division B). The percentage of cures in division B is also markedly higher than that in division C. The percentage in division A (guinea pigs not inoculated and positive acid-fast stains not obtained), as would be expected, falls between those of the other two divisions.

Tables 6 and 7, comparing group 3, divisions A, B, C and group 4, divisions A, B, C are of no statistical value as far as percentages are concerned because the number of cases in each of these divisions was small. However, the tables do present points of interest. The most striking observation is the exceedingly high mortality in division C of both groups. No patients in group 4 C were cured in either five or ten years, whereas two patients in group 3 C were reported cured after ten years. Also seven patients in group 4 A were reported cured after five years and four after ten years, while less than this in group 4 B were cured.

UROGRAPHY

Before any deductions are drawn from the foregoing data a word should be said concerning the evaluation of urograms in this condition. As the cases in this series were not studied later than 1932, few excretory urograms were made. Nearly all the urograms were retrograde pyelograms. In the entire series of cases these pyelograms were made of the good kidney in forty-five cases. Of these, thirty-eight were considered normal. Thirty-five of the patients who gave normal pyelograms were traced five years, at which time 30 per cent were dead and 40 per cent were reported as cured. These results are about the same as for the entire series of cases (table 4). There were, however, too few pyelograms to warrant any conclusion being drawn from their study.

COMMENT

What, then, can be deduced from the information derived from study of the comparative results in these various groups of cases, and in what way can it assist in the diagnosis and plan of treatment in renal tuber-

TABLE 5.—*Analysis of Results in Group 2, Based on Inoculation of Guinea Pigs and Demonstration of Bacilli of Tuberculosis by Stain of the Urine Obtained from the "Good" Kidney by Ureteral Catheterization*

Years After Operation	Group*	Total Patients	Traced Patients	Patients Dead		Patients Living							
						Cured		Improved		Unimproved		Condition Unknown	
				Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced
5	2 A	313	454	95	20.9	195	43.0	96	21.1	36	7.9	32	7.1
	2 B	229	200	28	13.3	130	30.3	52	24.9	18	8.6	6	2.9
	2 C	69	55	23	41.8	12	21.8	8	14.6	7	12.7	5	9.1
10	2 A	476	379	131	34.6	130	33.6	61	16.1	16	4.2	21	5.5
	2 B	196	113	31	27.4	51	45.1	23	20.4	6	5.3	2	1.8
	2 C	57	30	20	66.7	6	20.0	3	10.0	0	0	1	3.3

* Group 2, "good" kidney catheterized; microscopic examination of urine specimen contained from 0 to 3 leukocytes per high power field. A, no guinea pig inoculated, no positive acid-fast stains obtained. B, negative guinea pig, no positive acid-fast stains obtained. C, positive guinea pig or positive acid-fast stain obtained, or both positive.

TABLE 6.—*Analysis of Results in Group 3, Based on Inoculation of Guinea Pigs and Demonstration of Bacilli of Tuberculosis by Stain of the Urine Obtained from the "Good" Kidney by Ureteral Catheterization*

Years After Operation	Group*	Total Patients	Traced Patients	Patients Dead		Patients Living							
						Cured		Improved		Unimproved		Condition Unknown	
				Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced
5	3 A	89	77	33	42.9	22	28.5	11	14.3	5	6.5	6	7.8
	3 B	17	16	6	37.6	7	43.8	1	6.3	2	1.3	0	0
	3 C	15	15	8	53.3	2	13.3	1	6.7	4	26.7	0	0
10	3 A	65	49	27	55.6	16	36.1	9	13.0	3	4.3	2	3.0
	3 B	6	6	2	35.3	4	50.0	1	12.5	1	12.5	0	0
	3 C	10	10	6	60.0	2	20.0	0	0	2	20.0	0	0

* Group 3, "good" kidney catheterized; microscopic examination of urine specimen disclosed from 3 to 10 leukocytes per high power field. A, no guinea pig inoculated, no positive acid-fast stains obtained. B, negative guinea pig, no positive acid-fast stains obtained. C, positive guinea pig or positive acid-fast stain, or both positive.

culosis? In the first place, to make a fairly accurate prognosis, catheterization of the good kidney, to determine the amount of pus being secreted, is imperative. A negative urine in such a case leads to a favorable prognosis and our statistical data indicate that the patient may expect approximately 43.5 per cent chance of a five year cure, a 65.2 per cent chance of being cured or improved in that period and only a 20.3 per cent chance of death within five years. If, in addition to this, inoculation of a guinea pig gives a negative result and a positive acid-fast stain is not obtained, his chance of dying within five years will drop to 13.3 per cent, his chance of a five year cure will be increased to 50.3 per cent, and his chance of being either cured or improved will increase to 75.2 per cent. On the other hand, if the guinea pig is positive, the patient's chance of dying within five years increases to 41.8 per cent and his chance of a five year cure drops to 21.8 per cent. These figures are dramatic and demonstrate that the results differ greatly in cases in which the urine from the good kidney is negative, depending on whether the guinea pig is positive or negative.

The question then arises Should a positive guinea pig corresponding to the good kidney, in spite of guinea pig or the stain is positive, the prognosis is poor and it is questionable if operation is warranted. In such cases, no doubt, fairly advanced bilateral renal tuberculosis is present and the possibility of clinical improvement of the better of the two kidneys, following operation, certainly is questionable. If there is a small amount of pus, if guinea pigs and stains are negative, and if the excretory urogram is normal, the prognosis seems to be reasonably good and possibly surgical measures are worth the trial. This is especially true if there are not more than ten or fifteen pus cells per high power microscopic field in the centrifuged ureteral specimen of urine.

One might well ask whether this study sheds any light on the old arguments whether renal tuberculosis is essentially bilateral and whether healing ever takes place in renal tuberculosis. Comparing the groups and divisions (2 C, 3 C and 4 C), it is seen that in group 2 C there is a considerably higher percentage of five and ten year cures, in spite of the positive guinea pig. There are fewer in group 3 C but still a fair number, whereas in group 4 C there are no five or ten year cures. Group 4 C, including as it does the cases in which guinea pigs or stains were positive and a considerable amount of

TABLE 7.—*Analysis of Results in Group 4, Based on Inoculation of Guinea Pigs and Demonstration of Bacilli of Tuberculosis by Stain of the Urine Obtained from the "Good" Kidney by Ureteral Catheterization*

Years After Operation	Group*	Total Patients	Traced Patients	Patients Dead		Patients Living							
						Cured		Improved		Unimproved		Condition Unknown	
				Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced	Number	Per Cent of Traced
5	4 A	24	23	4	17.4	7	30.4	7	30.4	3	13.1	2	8.7
	4 B	11	10	3	30.0	2	20.0	3	30.0	2	20.0	0	0
	4 C	12	12	8	66.7	0	0	1	8.3	3	25.0	0	0
10	4 A	20	14	6	42.8	4	28.6	4	28.6	0	0	0	0
	4 B	8	5	2	40.0	1	20.0	2	40.0	0	0	0	0
	4 C	6	6	6	100.0	0	0	0	0	0	0	0	0

* Group 4, "good" kidney catheterized; microscopic examination of urine specimen disclosed more than 10 leukocytes per high power field. A, no guinea pig inoculated, no positive acid-fast stains obtained. B, negative guinea pig, no positive acid-fast stains obtained. C, positive guinea pig or positive acid-fast stains, or both positive.

absence of pus in the urine, be considered a contraindication to surgical operation? It must not be forgotten that 21.8 per cent of such patients were cured, that a total of 36.4 per cent were either cured or improved at the end of five years, and that 30 per cent were either cured or improved at the end of ten years. Certainly almost any one who had the disease would be willing to submit to operation if given a 30 to 36.4 per cent chance of improvement for from five to ten years. If other factors do not constitute contraindications to surgical operation, and if the excretory urogram of the good kidney is within normal limits, it seems to us that a positive guinea pig should by no means be considered a contraindication to surgical measures, although it would considerably alter the prognosis. The common procedure, therefore, of performing nephrectomy in such cases, without awaiting the report of inoculation of animals, would appear to be justified.

When pus is found in the catheterized specimen of urine from the good kidney, the problem is radically altered. Because of the small number of such cases in our series it is difficult to make as far-reaching statements as have been made concerning the cases in which the urine was microscopically negative. However, tables 6 and 7 suggest that if more than three pus cells per high power microscopic field are found and the pus was present, no doubt represents advanced lesions which probably are those which Thomas would classify as destructive lesions. In these cases progress would be expected to be poor. The cured patients in group 2 C and group 3 C, however, are not so easily explained. No doubt the positive finding in some cases is owing to reflux of vesical urine up the ureter or is attributable to the catheter, as it is passed through the bladder, picking up bacteria and pus. However, certainly some of these must have been bona fide cases of bilateral renal tuberculosis. That the lesion in the kidney became quiescent or clinically healed seems probable, although of course a conclusion cannot be reached unless the kidney is examined microscopically.

Although what has been written here does not settle the academic argument, it does clarify the practical phase of the subject, which is the only one in which the patient is interested. We believe that on a basis of these figures, which are drawn from a relatively large group of cases, it should be possible for the physician to give his patient a fairly accurate prognosis after complete study of the good kidney, including urography. The estimate, of course, must be tempered by consideration of the general condition of the patient, the presence or absence of associated disease (whether tuberculous or otherwise) and the approximate length of time the disease has been in progress.

ABSTRACT OF DISCUSSION

DR. JOHN R. HAND, Portland, Ore.: The authors should be commended for their effort to crystallize our knowledge of the basic facts on which the surgical indications for nephrectomy and the prognosis are based. They have suggested that the study should include urograms, analysis of the degree of pyuria, inoculation of guinea pigs and staining the specimens obtained by ureteral catheterization of the good kidney to detect acid-fast organisms. I would add determination of the comparative functional capacity of the good kidney. This would probably be of greatest value when the prognosis was poor, that is, when pyuria was present. The authors' analysis allows one to visualize four important pictures: 1. That of a kidney not excreting pus or acid-fast bacilli. The patient with this type may expect a 50 per cent chance of cure, a 75 per cent chance of improvement and a 13 per cent chance of death within five years. 2. That of a kidney not excreting pus but excreting acid-fast bacilli. There is an area of caseous necrosis in which acid-fast organisms are escaping through the tubules but in which a pyogenic reaction has not yet occurred at the papilla. The patient stands a 21 per cent chance of cure, a 36 per cent chance of improvement and a 41 per cent chance of death within five years. (These two pictures make one realize that the acid-fast bacilli obtained in the specimen from the good kidney are in most instances not due to contamination.) 3. That of "a good kidney" with a normal urogram. The patient stands a 40 per cent chance of cure and a 30 per cent chance of death within five years. This picture emphasizes that even when the urogram is normal, acid-fast organisms may be coming from the kidney. 4. That of a kidney in which caseous necrosis, ulceration and a pyogenic reaction are taking place at the renal papilla, allowing the excretion of pus. Whether or not this pyuria is accompanied by excretion of acid-fast bacilli, the prognosis is poor. This paper reflects credit not only on Drs. Emmett and Kibler but on the teamwork and skill of the clinicians and surgeons who made their exceptional results possible.

DR. FREDERICK LIEBERTHAL, Chicago: It is natural to assume that an early lesion in the good kidney may heal after the removal of the bad kidney. Instances of such healing have been reported in the literature. The authors do not say how long they carried on their follow-ups, and hence the accuracy of their statistics is to be questioned. When one considers that tuberculosis may run its course for decades or even a lifetime, that long remissions may occur and that renal tuberculosis affects mainly persons between 20 and 40, in other words persons who would under normal circumstances have a long life expectancy, it immediately becomes clear that follow-ups of five, ten or even twenty years are imperative if accurate conclusions are to be drawn as to the ultimate fate of the patient. I believe therefore that in this regard Drs. Emmett and Kibler have struck the keynote of the problem, for I am convinced that many of the errors in the literature concerning renal tuberculosis are due to the fact that the follow-ups were too short. In this series the turning point seemed to come in those cases in which the separated urine from the good kidney contained fewer than 3 pus cells per high power field. The question naturally arises as to the extent of the lesions in these cases. A cell count of lower than 10 per field when there is good renal function and the excretory urogram is normal denotes that the renal lesion is limited to a solitary caseous ulcer on one renal papilla which scarcely covers the summit of the papilla. The fact that such a minute solitary lesion in the good kidney reduces the chances of a five year improvement or cure after removal of the bad kidney to only 21 per cent is worthy of consideration. Today there is a great tendency to treat frankly unilateral renal tuberculosis conservatively. I believe that this study offers a prophecy of the disastrous results which may be expected when ten and twenty year follow-ups become available for such treatment.

DR. J. C. NEGLEY, Los Angeles: My experience includes seventeen years of work in a tuberculosis sanatorium and eighteen years of work in a large clinic. I realized after a number of years that when the so-called good kidney was not catheterized bilateral renal tuberculosis was undiagnosed in many cases. The close correlation between the development of renal tuberculosis in the remaining kidney and bilateral renal tuberculosis diagnosed at the first examination is worthy of note. In a series of cases which I reported four years ago, tuberculosis developed in the remaining kidney in about 4.5 per cent of all the cases in which operation was performed. In about 10 per cent bilateral renal tuberculosis was observed at the first examination. In the Urologic Clinic renal tuberculosis in the remaining kidney developed in 12.5 per cent of the cases and bilateral involvement was present when the diagnosis was first made. I offer a very radical procedure, for which I have been criticized. For the past seventeen years at the Olive View Sanitarium it has been the custom to take two sets of pyelograms every time a patient of mine is examined. That is, I make bilateral pyelograms with catheters at or near the renal pelvis and immediately afterward a bilateral set with the catheters at or near the level of the bladder. In seventeen years I have had no disastrous results. No patient has died. I have had no more reaction than if I had catheterized but one side, and the fear, always present, of setting up acute miliary tuberculosis through the pyelovenous back flow has never materialized. In the authors' paper a great deal of emphasis has been placed on not catheterizing the good kidney. If the good kidney is not catheterized, how does one know whether it is a good kidney or a bad one? The cases reported are similar to those observed at a large urologic clinic. The patient comes because he has symptoms, generally directed to one side. One kidney is catheterized and removed, and then the patient leaves. Constant contact is not possible. In the tuberculosis sanatorium, however, patients are under control at all times. Repeated examinations are performed as they show symptoms or as their bladder urine shows pathologic changes. In a number of cases bilateral renal tuberculosis is diagnosed. Despite the fact that the procedure is radical, I do not consider any case of renal tuberculosis studied completely until two sets of bilateral pyelograms such as I have described have been made, plus a test for pus cells, smears and inoculation of guinea pigs.

DR. WILLIAM P. HERBST, Washington, D. C.: There are several interesting phases of this tuberculosis problem. One should not forget that whether the patient gets well or not depends on his resistance and that renal tuberculosis is not a local but a constitutional disease. Gilbert Thomas has emphasized this fact repeatedly. All patients who have had a nephrectomy for renal tuberculosis should be treated with sanatorium care for a year in order to give their generalized tuberculous process a chance to heal and to improve the end results from the standpoint of lowering the incidence of involvement of the remaining kidney. Natural resistance to tuberculous infection varies markedly. Not infrequently one sees a patient who refuses surgical intervention carrying on for ten years or more and yet having extensive, active bilateral involvement. Such observations justify conservative handling in the early stages and reemphasize the necessity of complete sanatorium rest after nephrectomy whenever it is economically possible.

DR. JOHN M. KIBLER, Rochester, Minn.: Dr. Negley asked how we could be sure that one kidney was good. The terms good and bad were used only in a relative manner and were defined rather arbitrarily at the beginning of the paper. By "bad" kidney we mean the more involved of the two kidneys; by "good" kidney we mean the uninvolved kidney or the less involved of the two kidneys. As to the making of repeated pyelograms of patients suffering with renal tuberculosis, it is our opinion that cystoscopic examination should be kept at an absolute minimum, as it is usually very painful to the patient and may produce actual harm. Dr. Braasch and I recently reviewed the last 100 consecutive cases of renal tuberculosis in which operation was performed at the Mayo Clinic (Emmett, J. L., and Braasch, W. F.: Has Excretory Urography Replaced Pyelography in the Diagnosis of Renal Tuberculosis? *J. Urol.* **40**:15-23 [July] 1938). We found that the trend in diagnosis was definitely away from retrograde pyelograms. Most diagnoses were made on the basis of an excretory urogram and examination of the ureteral specimen of urine from the good kidney. In an effort to avoid unnecessary cystoscopic examinations, a group of urologists is beginning to advocate diagnosis by excretory urograms alone in most cases of renal tuberculosis. Whether late postoperative results by this method of diagnosis will justify its continuance time alone will tell.

THE CERVIX UTERI IN OBSTETRICS AND GYNECOLOGY

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Recognition of the intimate relationship of obstetrics and gynecology has come a long way since male midwives were first admitted to the birth rooms and since Marion Sims laid the foundations for modern gynecology.

In the truly great teaching centers and in most important hospitals it has long since been recognized that obstetrics and gynecology are twin specialties and should be taught together and so far as possible practiced together. It is true that most obstetric patients are and should continue to be cared for by men in general practice. The general practitioner who does obstetric work should be gynecologically trained and able to evaluate the gynecologic problems of his patients.

The interlocking pathology and principles of treatment of the cervix uteri demonstrate this unity well. The cervix is not merely an appendage protruding into the vagina. It is a distinct structural and functional entity. Its disorders may be related to its role in obstetrics or gynecology or both. This concept is vital to intelligent treatment.

The cervix is the conic or cylindric termination of the uterus, usually 3 cm. long. Of this two thirds protrudes into the vagina, the portio vaginalis, and one third is the so-called supravaginal portion.

The anatomic landmarks between the cervix and the corpus uteri are the reflection of the vesico-uterine peritoneum, the level at which the uterine arteries branch and the narrowing of the lumen of the organ at the anatomic internal os.

The isthmus uteri or pars intermedia, formerly a debatable subdivision, is now accepted and identifiable. It is essentially the supravaginal portion of the cervix. It extends downward for about 8 mm. from the level of the "anatomic internal os" to a point where the lining of the canal becomes abruptly cervical in character, the "histologic internal os."

The structure of the cervix, unlike that of the muscular corpus uteri, contains little muscle but much connective and elastic tissue. It is comparatively firm and unyielding. The superior end, the isthmus, is more muscular like the corpus but somewhat softer. This gives it the effect of a double hinge, which permits of ready backward and forward displacement of the corpus in the pelvic cavity. Whoever practices obstetrics must be familiar with the remarkable softening of the zone between corpus and portio in early pregnancy, the "Hegar sign." Again in late pregnancy and labor there appears the striking phenomenon of formation of the "lower uterine segment," that thinned out zone between the contractile corpus and the dilating cervix. These alterations involve the same segment of the uterus, the isthmus uteri.

The cervical canal extends from the external os to the anatomic internal os, is narrowest at these two points, averaging 4 mm. in diameter, and is slightly spindle shaped, averaging 7 mm. transversely at its widest point. In the formation of the cervix the anterior and posterior walls are the stoutest. This becomes striking on examination of the postpartum cervix, and after involution the canal is found to be much wider as a result of the yielding and overstretching of the lateral walls. Histologically the lining membrane of the cervix is characterized by the presence of mucus-secreting glands which point downward and toward the canal and by the absence of cilia. The mucosa of the isthmus resembles that of the corpus. It can be distinguished by the direction of the glands. Those of the corpus point downward and toward the cavity and those of the isthmus upward and away from the canal.

The most striking histologic fact in connection with the cervix deals with the changes at the external os. The forward and backward interplay between the cuboidal cervical mucosa and the squamous epithelium covering the portio, with the external os as the prize, begins in fetal life. At the seventh month the canal of the cervix is lined by squamous epithelium. At birth the endocervix has pushed back the squamous epithelium beyond the external os and onto the portio in approximately 30 per cent of female infants, the so-called congenital pseudo-erosion. Within the first year of life in most of these infants the squamous epithelium acquires the mastery and the external os becomes the dividing line. Again at puberty a secondary physiologic pseudo-erosion may occur, which likewise tends to recede. This struggle continues throughout life.

In adolescence and maturity the epithelium covering the portio is subjected to the hypersecretions of the cervix which accompany certain constitutional diseases and to the irritation of cervical discharges due to inflammation. In either case the squamous epithelium is macerated, and the red mucus-secreting endocervix advances to erosion, which may be small and superficial or huge, furrowed and even papillary. Lastly, the cervix which has been traumatized in labor heals with gaping, gradual eversion, ectropion and erosion.

Postmenopausal atrophy of the corpus and cervix uteri is effected by two distinct influences. Atrophy of the corpus and its endometrium results from disappearance of the ovarian stimulus. Diminished circulation produces gradual atrophy of the cervix but to a much smaller degree than the shrinkage of the corpus. The endocervix retains its mature form and function (vaginal lubrication), since the cervix is not under the direct influence of the ovarian stimulus.

Fertilization, pregnancy and labor proceed normally only when all the organs involved are normal in structure and function. For fertilization the cervix should point posteriorly at right angles to the vaginal axis. It should not descend to the level of the ischial spines. The portio vaginalis should be covered right up to the external os by the smooth squamous vaginal epithelium. The external os should be sufficiently patulous, the mucous secretion from the endocervical glands should be distinctly alkaline and the canal itself should be slightly spindle shaped, terminating 3 cm. above the external os at the narrow internal os. At the time of orgasm this structure dips into the pool of semen deposited in the posterior vaginal fornix, and its alkaline mucosa forms a pathway of escape for the spermatozoa from the deadly acid secretion of the vagina.

With the foregoing in mind, it is easy to understand that retroflexion, retroversion and prolapse may render fertilization difficult or impossible. This type of infer-

Read before the Section on Obstetrics and Gynecology at the Eighty-Ninth Annual Session of the American Medical Association, San Francisco, June 16, 1938.

tility may be overcome by the intelligent selection and competent execution of a corrective operation. The conduct of the ensuing labor should be so contrived as to preserve the operative results previously achieved.

The persistence of congenital pseudo-erosion or the development of pseudo-erosion after puberty, the erosion produced by inflammatory destruction of the epithelium covering the portio and its replacement by the endocervical epithelium, cervical laceration in labor with resultant eversion and erosion formation, all act as more or less insurmountable barriers to fertilization.

Endocervicitis not infrequently converts the normal alkalinity to an acid cervical secretion repellant to the spermatozoa. An endocervicitis may be the starting point of a puerperal infection with its chain of sequelae.

Inflammatory erosions with or without endocervicitis are often associated with urinary disturbances and with low backache. Appropriate treatment of the cervical lesion often results in complete relief of such symptoms.

Stricture of the cervical canal at any level may be congenital but is usually acquired. When inflammatory, it is usually below or above the spindle-shaped dilated zone, single or multiple, or it may affect the external os, "conglutinatio orificii cervicis externi."

Strictures may result from the trauma of curettage or following abortion, and application of radium may produce them. For demonstration of strictures of the cervical canal on specimens the frontal section is better than the sagittal section, as this lays the canal open in its widest diameter.

Each of these manifold lesions presents a separate gynecologic problem which may be solved in various ways. If the point requires further emphasis, this interlocking of obstetric and gynecologic problems justifies the bald assertion that no one can be a competent obstetrician without adequate training in gynecology and its converse.

Symptomless retroflexion and retroversion require no treatment. To facilitate pregnancy, however, if the malposition of the uterus is not maintained by adhesions a properly fitted pessary, removed and replaced monthly, may be a definite aid toward pregnancy.

The adherent corpus uteri can sometimes be dislodged and erected under anesthesia. When this fails, surgical correction is indicated. Formerly the Gilliam suspension operation or one of its modifications was the method of choice. It is still reliable when properly executed. Two points are especially important in this procedure. The short arm of the double loop of round ligament should not be more than 3 cm. long, so that the fundus uteri will sit snugly against the abdominal wall, and the point of implantation of the ligaments into the abdominal wall should be 4 cm. above the symphysis. If the attachment is placed much lower and pregnancy occurs, the uterus sometimes fails to expand evenly in the vertical axis and either an abortion follows or the pregnancy develops entirely at the expense of the posterior wall of the uterus.

It may be entirely adequate in selected instances to rely on shortening of the uterosacral ligaments, radical advancement of the bladder and other methods of shortening the round ligaments.

Surgical cure of prolapse of the uterus with preservation of fertility continues to tax the ingenuity of operators. Correct treatment of the cervix is vital to success. If an unduly elongated portion of the cervix is preserved, the operation for prolapse is usually doomed to failure. If the cervix is amputated too close to the internal os, subsequent pregnancy usually ends in abortion or immature labor.

The parametrial fixation operation [1] has assumed first place in popularity. The important steps are denudation of an area of the anterior vaginal wall proportional to the size of the existing cystocele, if any; dislodgment of the bladder; amputation of enough of the cervix to reduce the overall length of the uterus to 8 cm., of which from 2 to 3 cm. should be cervix; parametrial fixation anterior to the cervix, and reconstruction of pubovesicocervical fascia. The perineal body, if relaxed by previous delivery, must likewise be thoroughly reconstructed. Another procedure which can be carried out vaginally is the Halban-Porges operation.[2] Here again the cervix must be reduced to proper length and the anterior peritoneal reflection opened after the usual vaginal dissection and upward displacement of the bladder. The anterior flap of the peritoneal reflection which overlies the back wall of the bladder is now pulled into the vagina until it no longer advances. The fundus uteri is then sutured transversely against this anterior part of the peritoneum as close to the parietovesical angle as possible. The peritoneal opening is then closed, a strong reconstruction of the anterior vaginal wall is accomplished and the perineal body is reconstructed.

Formerly the treatment of ectropion and erosion consisted in repeated application of various chemicals aimed at the destruction of the misplaced cuboidal epithelium. It should be noted that in all instances of erosion islands of squamous epithelium remain in the zone of the lesion and aid in the rapid epithelization of the portio when the overlying encroaching tissue is destroyed.

The modern method of treatment for ectropion and erosion is complete destruction by the electrocautery, first carried out by Hunner [3] in 1906. Originally it was thought that radial destruction with preservation of the intervening epithelium was necessary. Long experience has demonstrated that complete destruction, until a black eschar is achieved, is entirely safe. This can be carried out as a single office procedure and requires no anesthesia, local or general. Similarly, endocervicitis can be cured or so completely subdued with the platinum loop electrocautery or the Cherry electrode or by electrocoagulation as to permit the return of normal secretory activity.

In fifteen years of office cauterization with the nasal tip cautery I have observed only two instances of late hemorrhage, both controlled by recauterizing, and only one instance of stricture.

Strictures resulting from any of the causes previously given must be treated by vigorous dilation, the best type of instrument being the graduated metal Hegar dilators.

When pregnancy has been established, the cervix becomes increasingly important. It is the living barricade and barrier. It locks the developing fetus and its protective fluid chamber within the corpus cavity. It absorbs the shock of impact which may accompany coitus. It accumulates the mucus which is no longer carried out with the menstrual flow and so provides an effective plug against bacterial invasion of the corpus cavity. If now the cervix is too short, whether congenitally or because of operative or traumatic destruc-

1. Frank, R. T.: Am. J. Obst. & Gynec. 29:240 (Feb.) 1935.
2. Mestitz, Walter: Surg., Gynec. & Obst. 54:663 (April) 1932.
3. Hunner, G. L.: Treatment of Leukorrhea with Actual Cautery, J. A. M. A. 46:191 (Jan. 20) 1906.

tion, or if previous trauma in labor has left it gaping widely, it is easy to understand how abortion may ensue.

Chronic infection of the cervix in the presence of pregnancy has heretofore received little attention. The fear of producing abortion has kept physicians from attempting any direct attack on the lesion. Yet Miller and his associates [4] reported in 1930 the treatment of erosion and endocervicitis in 2,000 cases by electrocauterization of the cervix and the canal. Their series was limited to patients up to the twenty-eighth week. The procedure always caused contractions at the time, but there was only one abortion which they felt was due to the cauterization. They reported no obstetric abnormality traceable to the cauterization, a marked decrease in puerperal morbidity, no sepsis and no recurrence of the erosion after delivery. Absence of any recurrence of erosion in 2,000 deliveries is difficult to understand. Aside from this question, however, the preservation of pregnancy and the removal by cautery of a direct source of uterine infection may prove to be a tremendous step in the reduction of maternal morbidity.

Passmore [5] confirmed these results in 1932. He found only sixty patients among 600 who required cauterization, twenty-four with severe and thirty-six with minor lesions.

Effacement of the cervix, that is, the shortening of the long axis and its eventual merging into the lower uterine segment, may begin weeks before the onset of labor. Dilatation of the external os usually follows the dilatation of the cervical canal. The external os may persist as a pinhole-sized os (conglutinatio) after the cervix is completely effaced and the lower uterine segment is well thinned out. This condition may simulate complete dilatation on rectal examination and may result in application of the forceps to the head, the blades being forced through the uterine cap with inevitable severe injury.

When the cervix has been lacerated in previous labor the external os is no longer a dimple or slit but is a widely gaping orifice bordered by more or less hypertrophied everted anterior and posterior lips, with scar tissue in the lateral angles. This type of multiparous cervix is responsible for precipitate labor, for extensive additional cervical lacerations if the patient is permitted to bear down before dilatation is complete and for incarceration of the edematous anterior lip between the head and the symphysis, which, unless released by upward dislodgment, may prevent delivery and result in necrosis or avulsion of the incarcerated cervix. In this connection it is interesting to note that there are seventeen recorded instances of spontaneous annular amputation of the cervix in labor.

The issue of rectal versus vaginal examination in the conduct of labor should not exist. A single vaginal examination properly carried out either in the home or at the hospital is no menace to the safety of the mother and is the only way in which the physician of average experience can orient himself as to all the accessible factors involved in the delivery. Subsequently the rectal approach will tell the story of the disappearing cervix and confirm the level of the head. Further vaginal examinations may be done only for special indications.

Inspection of the cervix immediately after delivery reveals a massive organ hanging loosely in the upper part of the vagina. The anterior and posterior segments are heavy, while the lateral zones are markedly thinned out. Lacerations when present are usually in the thin lateral walls of the cervix. The distance from the external os to the top of the vagina at this time is approximately 10 cm. A tear of 2 cm. in the lateral zone will, when involution is completed, be nothing more than a physiologic nick at the external os. Moreover, attempted suture of these thin edges is usually only a gesture. The patient in whom labor has progressed spontaneously and normally to complete effacement and dilatation, with subsequent advance of the head to the pelvic floor, rarely sustains a major injury of the cervix. Major injuries should be repaired promptly.

Danforth [6] reported the results of immediate inspection of 904 cervices after delivery, excluding instances of bag induction, manual dilation and cesarean section. He found laceration in 102, sixty-nine primiparas and thirty-three multiparas. In fifty-eight the tear was less than 2 cm. and not sutured. In forty-four the tear was more than 2 cm. and in thirteen of these ranged from 3 to 5 cm. In these forty-four the tear was repaired, an incidence of only 4.5 per cent. This conforms to my own observation and practice. The inspection of the cervix as a routine after delivery is therefore superfluous in most instances and increases the risk of morbidity.

When injury is suspected because of operative procedures and inspection reveals a laceration exceeding 2 cm., repair should be carried out with loosely tied interrupted catgut sutures, the first being placed above the angle of the tear. For cervical bleeding one or more sutures may need to be tied more tightly. Repair of old cervical injuries at the time of subsequent delivery is not advisable. The risk of creating atria of infection is greater than the alleged advantage of sparing the patient a subsequent hospitalization.

Massive edema of the postpartum cervix has been reported many times. It must be differentiated from prolapse and inversion of the uterus. With bed rest and nonintervention the edema disappears in from ten days to three months.

Operative correction of cervical pathologic conditions varies with the lesion and the desired objective. Certain underlying principles may be enunciated. Simple birth injuries which are symptomless and are not accompanied by inflammatory changes require no treatment. If the patient is to retain her childbearing capacity, birth injuries requiring attention must be repaired in such manner as to avoid undue foreshortening of the cervix. If this is not an objective, other types of repair are available in which preservation of the proper length of the cervix and endocervix is no longer necessary. If the lesion is essentially the result of inflammatory changes with the development of multiple cysts and florid erosions, the cautery is adequate. It has completely displaced the Schroeder operation in my practice. For deep laceration with heavy scar formation, excision and approximation are indicated. If there is gross involvement of the endocervix as well as multiple cyst formation on the portio, the Sturmdorf operation—cone-shaped excision with utilization of the portio as a new lining for the canal—is excellent. For simple hypertrophy and elongation, low or high amputation is

4. Miller, H. A.; Martinez, D. B., and Hodgdon, M. E.: Pennsylvania M. J. 34:708 (July) 1931.
5. Passmore, B. H.: Texas State J. Med. 27:716 (Feb.) 1932.
6. Danforth, W. C.: Am. J. Obst. & Gynec. 15:505 (April) 1928.

selected in accordance with the patient's wishes concerning pregnancy.

Each of these operative procedures is of the nature of a plastic surgical measure and calls for a nice sense of proportion and fit to accomplish a satisfactory end result. Still the selection of the appropriate operation is more important than extreme dexterity in its execution. The sound judgment of the trained "gynetrician" is worth more to the patient than a cosmetic stub of cervix which will no longer protect pregnancy.

In the actual technic several points are important. Interrupted sutures are preferable to continuous or lock stitch sutures. They should be placed approximately 1 cm. apart and should be tied for apposition only. The suture material should be well chromicized no. 2 catgut. Occasional late hemorrhage has influenced many operators to utilize silkworm gut for the deep sutures in this kind of work. Tested catgut serves equally well and obviates the necessity for subsequent removal.

Benign tumors of the cervix, though infrequent, are usually fibromyomas. The accepted treatment is enucleation. In this connection a word of caution is advisable. Many patients with this type of growth are anemic because of protracted menstrual bleeding, with resultant lowered resistance to infection. The cervix is richly supplied with lymphatic vessels which drain into the broad ligaments. Death from sepsis may follow simple enucleation of such a tumor of the cervix. The patient should be prepared by a preliminary blood transfusion, and the field of operation should receive the most scrupulous preoperative preparation.

Carcinoma of the cervix holds first rank among all the obstetric and gynecologic causes of death. Hinselmann's [7] colposcope was devised to reveal tiny lesions of the cervix which might be incipient carcinoma and promptly curable. Schiller's iodine test [8] was aimed at the same objective. Each of these devices, to be effective, must be used as a routine, with biopsy of any suspicious areas. When the microscopic picture is clear-cut the lesion is usually one which should have aroused suspicion without either one of these aids. Other specimens, studied because they do not take up iodine, may show what Schiller called the preinvasive stage of carcinoma. Unfortunately this classification is not generally accepted by pathologists. I have found the colposcope unnecessary and the iodine test inadequate.

For the cure of carcinoma of the cervix the old issue of surgical measures versus irradiation scarcely exists any longer. Treatment with radium or roentgen rays or both has almost completely displaced surgical methods in the hands of the most experienced specialists here and abroad. Choice of treatment based on types of cells —that is, whether they are radioresistant or radiosensitive—has been found fallacious with both types so often that type is really no longer a criterion.

Clinically, if the lesion is truly incipient with no detectable involvement of the deeper part of the cervix or the parametrium, hysterectomy followed by irradiation may still be justifiable.

The menace of the cervical stump after subtotal hysterectomy has been a source of some concern and an argument in favor of routine total hysterectomy. The Mayos [9] have regarded it as a potential focus of infection resulting in keratitis, iritis and arthritis of the small joints. If this were so, although atrophy is the common fate of the stump, the source of infection could readily be eradicated by vigorous use of the cautery.

Masson [10] reported ninety-nine instances of carcinoma in twenty years at the Mayo Clinic and expressed advocacy of total hysterectomy as a routine. He reported a mortality of 1.2 per cent among 3,085 subtotal hysterectomies and of 1.8 per cent among 1,588 total hysterectomies. He stated that this increased mortality was negligible. Actually, however, it was a 50 per cent increase. It means that if all the subtotal operations had been total there would have been fifty-five deaths instead of thirty-seven. Polak culled only 256 cases from the world literature up to 1920, and it is to be doubted whether this extremely low incidence of carcinoma of the stump justifies the increased mortality almost certain to result from widespread indulgence in total hysterectomy as a routine.

It has been my aim throughout this brief analysis to convey the picture of a structure which, though a part of the uterus, is as distinct from it in function, pathology and treatment as the hypophysis is from the brain. The full significance of this picture is best understood when viewed through a binocular, one side labeled obstetrics and the other gynecology.

104 South Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. Edward A. Schumann, Philadelphia: I shall confine myself to one or two points of Dr. Baer's paper. The management of the old injured, infected and lacerated cervix has undergone a continuous change during the past thirty-five years. At the beginning of this period the methods for the relief of this lesion consisted in the deep, widespread Schroeder amputation or the entirely inadequate Emmett trachelorrhaphy, leaving a canal of presumably infected glandular tissues. These procedures were superseded by the Sturmdorf operation, and recently since the appearance of the electric conization knife I have found it adequate to abandon all operations for repair of the lacerated cervix and to depend for its relief on a wider or lesser excision of the tissue with the electric knife. The deal of nonsense which has been spoken and penned about the dangers of vaginal examination is most unfortunate and unbelievable. This whole matter has been so misunderstood, in my opinion, that Dr. Baer's statement that "a single vaginal examination, properly conducted, causes no harm and is no menace to the parturient woman" was delightful. His second statement was to the effect that routine observation of the cervix after delivery is not necessary. For ten years I have followed and observed every cervix of every parturient woman, and they presented every degree of laceration. Those presenting any degree at all were subjected to immediate repair. Gradually I found that but little good was done by this procedure, and while I did not find any increase in morbidity as a result of it, it has been almost entirely abandoned by clinicians unless some indication has rendered such observation important. With regard to the effect of chronic cervicitis and endocervicitis with leukorrhea on the production of puerperal morbidity, I am considerably interested. My associates and I are now conducting a series of observations on this matter in an attempt to prove our impression that puerperal morbidity is not enhanced thereby. Another point of Dr. Baer's that I wish to applaud is that the colposcope

7. Hinselmann, H.: Zentralbl. f. Gynäk. 51:901, 1927.

8. Schiller's iodine test: A. Clean cervix and inspect for (1) color of mucous membrane, (2) presence and sites of leukoplakia, (3) presence of erosions and (4) color of eroded areas. B. Bathe cervix for one minute in a solution made of 1 part tincture of iodine, 2 parts potassium iodide and 300 parts distilled water and inspect for (1) normal epithelium (is pink; turns mahogany brown), (2) normal erosion (is pink or red; remains pink or red), (3) carcinomatous epithelium (may be pink or white; turns pearly white) and (4) connective tissue (is pink; remains pink). C. A white patch is suspicious and must be examined histologically. It may be (1) carcinoma, (2) syphilis, (3) hyperkeratosis or (4) a scar.

9. Mayo, C. H., and Mayo, Charles, Jr.: Ann. Surg. 98:1215 (June) 1933.

10. Masson, J. C.: Am. J. Obst. & Gynec. 14:486 (Oct.) 1927.

is unnecessary and the Schiller test inadequate. I should like also to thank Dr. Baer for two statements he did not make. He did not call the cervix the "tonsil of the uterus" and he did not ascribe to this purely connective tissue substance with its thin layer of mucosa all the ills to which the possessor of a cervix is susceptible.

DR. GEORGE W. KOSMAK, New York: Dr. Baer called attention to the importance of the cervix in pregnancy. Although, as he states, it is a part of the uterus, there is a distinct difference in its physiology and pathology. I feel that in many cases insufficient attention is given to this structure when malignancy has been excluded. Chronic inflammations of the cervix, however, give rise to a multitude of symptoms the etiology of which may not be recognized as residing in this organ but which frequently call for radical rather than palliative measures, such as local applications and linear cauterization. I believe the latter has been much abused and that it is applicable only for superficial lesions, such as the so-called erosions of the vaginal portion. Deep seated infections of the canal are not satisfactorily eliminated, and if deeper cauterization is required the resultant scar formation is undesirable. The removal of a conical mass of cervical tissue with the electrocautery, as developed by Hyams and others, is satisfactory but requires special aptitude and skill. I have had excellent results from the Sturmdorf procedure, and subsequent pregnancy is rarely interfered with. The behavior of the diseased cervix in pregnancy may be given further consideration. The polypoid erosions may undergo development in early pregnancy and the resultant bleeding, especially after coitus, leads to the diagnosis of an impending or inevitable abortion, with later resort to curettage. In every case of bleeding during this period, visual inspection of the cervix is demanded and the bleeding can frequently be checked with the platinum loop brought only to a dull red heat. A white heated point usually increases the bleeding. The treatment can be repeated at intervals of from seven to ten days, supplemented with appropriate suppositories, tampons and douches. I have never seen abortions follow this procedure. Bleeding from the cervix in the later months of pregnancy may simulate placenta praevia: again visual inspection is demanded but local treatment is less satisfactory. Naturally, placenta praevia must be definitely excluded, which is not always possible, particularly in the marginal or lateral types, as a cervix previously diseased is apt to undergo much earlier softening. Dr. Baer questions the advisability of immediate repair in the milder degrees of lacerations and with this I would agree, as there is more danger of local infection and possible interference with lochial drainage. Therefore the apparent depth of a tear is of less importance as a deciding factor for repair than hemorrhage.

DR. GOODRICH C. SCHAUFFLER, Portland, Ore.: I thank Dr. Baer for his scholarly and sound presentation. Ten years ago Albert Mathieu and I made a survey of everything in the literature in relation to the caustic and cautery treatment of the endocervix. We found that there occurred an interesting cycle. In 1840 interest in the use of caustics and the cautery on the endocervix began to rise; from that time on there were increasing case reports in the literature, coming to a peak in about forty years (1880). A subsequent peak was reached several years later by the incidence of stasis, cervical occlusion and difficult labor following these treatments. These were simply as reported in the literature and may not represent the true condition; but in view of the modern tendency to radical, so-called office procedures on the endocervix—conization, cauterization, deep really surgical procedures—I call attention to this historical cycle for what it is worth. I was interested in Dr. Baer's presentation of the mode of growth of the epithelium, the cuboidal epithelium, growing down from the uterus and invading the portio vaginalis. A slide from the genitalia of a stillborn fetus shows the vagina and the endocervix with the usual roles of "harbors of infection" definitely reversed. There is a smooth endocervix with practically no cervical glands. The stratified epithelium is still high in the cervix and the vagina itself is rugose, cryptiform and poorly drained. I call attention to this in relation to the infectivity of the immature cervix, which I believe is practically noninfectible from the point of view of the glandular structure involved.

TREATMENT OF PREERUPTIVE MEASLES WITH CONVALESCENT SERUM

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It has been established that measles convalescent serum will prevent or modify measles in children intimately exposed to it if a sufficient amount of this serum is given intramuscularly by the fifth day after exposure. Sometimes this is effective up to the eighth day after exposure. The efficiency of the prophylaxis has been confirmed by observations in large series of cases all over the world.[1]

Sporadic attempts also have been made to mitigate measles even after it has reached the active stage by administering convalescent serum before, during and after the appearance of the eruption. Most investigators[1] have stated that these attempts were unsuccessful.

It also has been reported by many authors[2] working on experimental virus disease that once a pathogenic virus has invaded the body cells it is impossible for a therapeutic serum to cause any beneficial effect. The etiologic agent of measles in the light of many studies is probably a virus.

In spite of the discouraging reports of these therapeutic efforts and of the skepticism shown that any serum will mitigate a virus disease once it has reached the active stage, we felt that another, more systematic, therapeutic attempt to give convalescent measles serum in the preeruptive stage would be justified. If effective, such therapy might lower the mortality of measles, occurring in the weak, debilitated infant or child or in persons who have just recovered from an infectious disease or those suffering from an acute or chronic disease.

MATERIAL AND PROCEDURE

In the spring seasons of 1937 and 1938, children admitted to the Willard Parker Hospital in the preeruptive stage of measles were given varying amounts of convalescent serum. Children who were admitted for some other illness and in whom measles developed while they were in the ward were similarly treated. At the time of injection, definite Koplik spots were present in all patients and none of the children had previously received any measles convalescent serum. In all, twenty-four children were so treated. The serum was administered intravenously. In six of these children, at the time of the intravenous injection, additional serum was given intramuscularly. Fourteen of these children were 3 years of age or under.

Nine other children were given an intravenous injection of an equal volume of normal adult serum during the preeruptive stage.

Aided by grants from the New York, Friedsam and Nathan Hofheimer foundations.

The authors had the cooperation of Dr. William Thalheimer, director of the Manhattan Convalescent serum Laboratory.

From the Willard Parker Hospital for Contagious Diseases, the Department of Hospitals and the Manhattan Convalescent Serum Laboratory.

1. Thomson, David, and Thomson, Robert: The Role of the Streptococci in Measles, Ann. Pickett-Thomson Research Lab. 7:193 (July) 1931 (comprehensive bibliography).

2. Rivers, T. M.: Recent Advances in the Study of Viruses and Viral Diseases, J. A. M. A. 107:306 (July 16) 1936.

Four other children were given concentrated normal serum [3] intravenously, also during the preeruptive stage.

The convalescent serum used by us was processed according to the regulations of the U. S. Public Health Service. The serum obtained from thirty individual bleedings was pooled, so that the age of the serum averaged not more than sixty days after the onset of the measles in the donors.

Normal adult serum was prepared in exactly the same way, the source, however, being healthy normal adults none of whom had recently been ill. Most of these adults had had measles during childhood.

The concentrated serum used was prepared according to the method described by Thalhimer.[3] It was concentrated to one third of its original volume. It was prepared separately for the four different blood types.

RESULTS

Modified measles has a much milder course than the usual measles. The patient is not very ill; the fever is at a lower level and its duration is short. The catarrhal stage is less severe. The eruption is modified in that the maculopapular lesions are discrete, scattered and confined mostly to the face. The cough is not as severe and is of short duration. The posteruptive illness is of short duration, and complications are unusual. Recognition of the modification of the clinical course of measles can be made with a fair degree of accuracy.

Summary of Results Obtained with the Use of Measles Convalescent Serum

Number of Patients	Amounts in Cc. (at Least) Intravenously	Amounts in Cc. (at Least) Intramuscularly*	Clinical Course: Modification	Clinical Course: Questionable Modification	Clinical Course: Failure
11	50	..	10	..	2
4	40	..	3	..	1
1	40	15	1	..	..
1	40	10	1	..	..
2	30	..	..	1	1
2	20	20	2	..	..
1	25	..	1	..	..
1	20	20	..	..	1

* Intramuscular injection was given at the time of the intravenous injection.

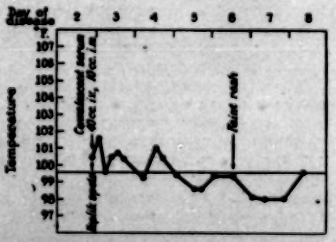

Chart 1.—The temperature curve in case 17. Measles serum was given intravenously and intramuscularly during the preeruptive stage. A faint rash was noted four days after injection. The temperature was never over 102 F.

Measles can be modified in young children if about 5 cc. of convalescent serum is injected intramuscularly from five to eight days after exposure. Once active clinical symptoms are present, larger doses of the serum would be necessary to modify the disease. We decided to administer the serum intravenously in order to obtain immediate widespread distribution and in the hope that the serum would act more efficiently.

Intravenous injection of pooled human serum, particularly in scarlet fever, sepsis and hypoproteinemia, is a standardized procedure. This extensive experience has proved that only rarely does any untoward reaction occur. We felt sure, therefore, that no risk was being taken in the intravenous administration of large quantities of pooled human serum. Empirically we decided to give 50 cc. to the first few patients admitted. From the data thus obtained we could estimate dosage on subsequent patients.

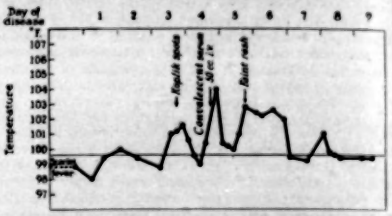

Chart 2.—The temperature curve in case 19. Fifty cc. of measles convalescent serum was given intravenously during the preeruptive stage. A faint rash appeared the next day. There was a definite modification of the measles, and the fever continued for two days after the appearance of the rash.

As noted, twenty-four children were injected with measles convalescent serum. Of these, ten patients received the serum two or more days before the appearance of any rash, and the remaining fourteen one day before.

The course of the measles was definitely modified in ten of the twelve children who received 50 cc. or more intravenously. It was definitely modified in five of the six children who were given from 40 to 45 cc. intravenously. Four children received 30 cc. intravenously. There was modification in only the two of the four who were given an additional 20 cc. intramuscularly. There was modification in one child who received 25 cc. intravenously but none in the child who received 20 cc. intravenously and an additional 20 cc. intramuscularly. The intramuscular injections were given at the time of the intravenous injections. The results are given in the accompanying table.

There was a total of five failures and one questionable modification in the twenty-four children treated. From the data obtained it would appear that in order to obtain modification about 40 or 50 cc. of the measles convalescent serum should be injected intravenously at least one day before the appearance of the eruption (charts 1 and 2).

The course of the measles was modified, in that these children were not very ill. The rash was not profuse and was confined largely to the face and upper part of the chest. On the face the rash was morbilliform and was discrete elsewhere. The cough was not distressing and ceased in a few days. In most of the cases fever persisted for about two days after injection (as compared with an expected duration of three or four days). The maximum height of the temperature was perhaps a little less than is to be expected in unmodified measles. If pneumonia was not already present on admission, none of the patients receiving

3. Thalhimer, William: A Simple Inexpensive Method for Concentrating Serum Under Sterile Conditions, Proc. Soc. Exper. Biol. & Med. 37:236 (Jan.) 1938.

measles convalescent serum gave subsequent evidence of pulmonary involvement.

As mentioned, twelve children received intravenous injections of 50 cc. or more of convalescent serum. In order to ascertain whether the course of the disease could be further influenced, four of these patients were given a second injection a day after the first and one patient was given two additional injections on successive days. This treatment seemed to have some additional effect. The rash did not appear until the injection of the serum was stopped, and it was sparse and modified. We had the impression that the appearance of the rash was being retarded by these successive injections (chart 3).

Four of the twenty-four children receiving convalescent measles serum were severely ill at the time of the discovery of measles. One had peritonitis, the second widespread pneumonia, the third severe rheumatic fever and the fourth severe croup. We feel that their recovery was favorably influenced by modification of the measles.

REPORT OF CASES

CASE 6.—V. D., a boy aged 5 years, was admitted April 11, 1937, with a severe nondiphtheritic croup; Koplik spots were noted. He was examined with a laryngoscope; no membrane was present but intubation was necessary. The day after admission 50 cc. of measles convalescent serum was given intravenously. The next day he was much improved and a faint measles rash appeared on the face and the chest. On the same day the tube was removed. A pneumonic infiltration was now present in the right lower lobe. His condition was satisfactory for four days, when the croup returned and intubation was again done. The tube was removed the next day; he improved within a few days and recovered rapidly.

CASE 22.—E. F., a girl aged 13 months, admitted April 28, 1938, had been discharged from Willard Parker Hospital six weeks before. She had been ill with whooping cough and pneumonia. She continued to cough at home. Eight days before the present admission, the child was ill with varicella. Six days later she became very ill, with a severe paroxysmal cough and extreme difficulty in breathing. On admission the child was severely ill; she was cyanotic and the respirations were shallow and rapid. Koplik spots were present. She was put in an oxygen tent. Physical examination and roentgenograms of the chest showed a diffuse pneumonic infiltration. Soon after admission 50 cc. of measles convalescent serum was

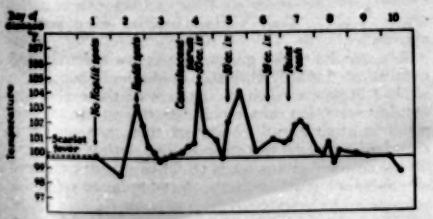

Chart 3.—The temperature curve in case 2. Measles convalescent serum was injected intravenously on three successive days during the preeruptive stage. No rash appeared until twenty-four hours after the last injection. The measles was definitely modified.

given intravenously. Another 50 cc. was given the next day. The child's condition improved, and two days after admission a faint rash appeared. The temperature dropped to a normal level. It was found necessary, however, to keep the child in an oxygen tent for a full week. Fine rales heard at the bases of both lower lobes persisted for an additional ten days after removal from the tent (chart 4).

CASE 23.—T. R., a boy aged 4½ years, was admitted May 2, 1938. Four days before admission he had been admitted to another hospital for an acute attack of appendicitis. At operation a gangrenous appendix with diffuse peritonitis was found. Koplik spots were seen on the third postoperative day and the child was transferred. On admission he was very ill and was given 50 cc. of measles convalescent serum intravenously. The measles was definitely modified, and his temperature returned to normal within three days.

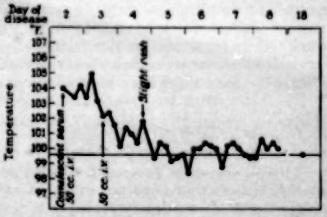

Chart 4.—The temperature curve in case 22. The child was admitted with a severe, widespread pneumonia. Convalescent serum was injected intravenously on two successive days. The measles was definitely modified, the temperature dropped to a lower level and the child improved clinically.

CASE 14.—L. H., a boy aged 9 years, had rheumatic fever with a severe cardiac insufficiency and was admitted to Willard Parker Hospital April 23, 1937, because Koplik spots were found. On admission the boy was very dyspoeic, and coarse rales were heard throughout both lungs. He was given 60 cc. of measles convalescent serum intravenously and two days later a faint rash appeared with definite modification of the measles. The child improved and he was returned to the hospital of original admission.

It was important to ascertain whether the injection of an equal volume of normal adult serum would have the same effect on preeruptive measles as the injection of measles convalescent serum. Since nearly all of the donors of normal serum had had measles during childhood, the normal serum contained a small amount of measles protective substance. Nine children were given 50 cc. of normal adult serum intravenously. In seven of the patients the measles was not modified and in two there was perhaps slight modification. In fact, in two of the children clinical and roentgen evidence of pneumonic infiltration subsequently developed. It is obvious therefore that, once symptoms of measles have appeared, the intravenous administration of 50 cc. of normal serum does not modify the disease.

It is necessary to use about four times as much normal pooled serum to cause the same prophylactic effect as is secured by measles convalescent serum. We wondered whether normal serum given in the same ratio during the preeruptive stage would be effective also in the modification of the measles. Assuming this ratio, it would be necessary to inject from 160 to 200 cc. of normal serum in order to obtain modification. This obviously is a large quantity.

We had available some normal serum concentrated to one third of its original volume by the method described.[3] From 50 to 70 cc. (equivalent to from 150 to 210 cc. of unconcentrated normal serum) was given intravenously during the preeruptive stage. Four children were treated with this concentrated normal serum. In three of these children the serum was injected the day before the appearance of any rash. There was some modification of the disease in only one of these three children. On the other child the rash did not appear until four days after the injection and was scarcely visible.

It is our impression that, once measles has developed, concentrated normal serum is not as efficient as measles convalescent serum, even if given in the ratio discussed. We realize that it is hardly fair to draw conclusions from experience with only four patients.

We hope some time in the future to report on the treatment of severe pneumonia occurring mainly in the late eruptive and posteruptive stage of measles. Ten children with pneumonia and measles were injected intravenously with from one to three large doses of measles convalescent serum or scarlet fever convalescent serum. Thus far the results have been of questionable value.

COMMENT

Since in virus diseases specific therapy is of little avail once active infection is present, it seemed surprising to us that this dictum does not apply to measles. The etiologic agent of measles is probably a virus. It was of further interest to note that by giving convalescent serum on successive days we thought it could further influence the clinical progress of the disease. The eruptions did not appear until the serum was stopped.

Zinsser [4] states that the immunologic difference between virus infection and bacterial invasion may be eventually explained by the intracellular position of the former. It would appear that virus multiplication requires the cooperation of the body cell (intracellular) metabolism. The cause of injury in virus diseases appears to depend on the metabolism of the invaded cells. Bacteria, in contrast, can multiply and thrive in the body cells, in intercellular fluids and on artificial mediums. Bacteria are more strictly parasites. This difference between viruses and bacteria may be the reason why immune serum can act more efficiently on bacteria. Filtrable viruses apparently are protected by the invaded cell, making it more difficult for the injected serum to act.

In our experience thus far the indications for this therapy apply to the following groups: weak, debilitated and malnourished infants or children; those who have just recovered from one or more of the infectious diseases of childhood, particularly whooping cough, and children who at the time of the development of measles were suffering from a severe, acute or chronic disease, such as pneumonia, rheumatic fever or peritonitis.

Should measles convalescent serum not be available, a transfusion of 125 cc. of whole blood from a donor recently recovered from measles could be used. It should be simple in any community to secure a donor of this kind.

We have not given measles convalescent serum at the height of the eruption. However, we have received from many physicians reports of good results when such serum was given to very sick persons at the height of the eruption. Guibert and Lapeyre [5] and Armstrong [6] also report excellent results when the serum was given at the height of the eruption. We cannot yet evaluate the efficiency of this procedure since clinically it is known that very sick patients improve rapidly when once the rash has reached its maximum.

4. Zinsser, Hans: On the Nature of Virus Agents, Am. J. Pub. Health 27:1160 (Nov.) 1937.
5. Guibert, L. R., and Lapeyre, A.: Essai de traitement des formes graves de la rougeole par le sérum de convalescents, Rev. serv. de san. mil. 108:823 (June) 1937.
6. Armstrong, J. W.: Personal communication to the author.

SUMMARY AND CONCLUSIONS

1. The intravenous injection of adequate amounts of convalescent measles serum, if given in the preeruptive stage of measles, modifies the course of the measles in most cases. Twenty-four children were so injected. In nineteen of these children definite modification was obtained.

2. The effective dose is from 40 to 50 cc. given at least one day before the appearance of the eruption.

3. The injection of convalescent serum on successive days seemed to have an additional effect.

4. Normal adult serum given in equal volumes to that of measles convalescent serum caused no modification.

5. The administration of from 150 to 210 cc. of normal serum concentrated to one-third its volume was effective in only one or possibly two of four patients.

6. There is no risk in the intravenous injection of large quantities of properly prepared pooled human serum.

7. This therapy is indicated especially under the following conditions: in weak and debilitated children, in those just recovered from whooping cough and other infectious diseases of childhood, and in those in whom measles developed during the course of another acute or chronic disease. Such children may thus be spared a severe attack of measles and perhaps avoid a fatal or a prolonged illness.

PLASTIC SURGERY IN CHILDREN

THE MEDICAL AND PSYCHOLOGIC ASPECTS OF DEFORMITY

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DETROIT

The past two decades have brought forth intensive campaigns in behalf of crippled and otherwise physically handicapped children of this country. Equally serious, but less widely publicized, are the childhood handicaps that are the results of deformity. By "deformity" we refer to those visible abnormalities which handicap their victims because of a peculiar appearance.

As examples of this group, we might cite harelip and cleft palate, facial birthmarks, saddle nose, hunchback, webbed fingers, crossed eyes, ptosis of the eyelid, disfiguring scars, lop ears, crooked teeth and contractures resulting from burns. Many of these are congenital deformities and others are acquired during childhood. Of the acquired group, many might have been prevented or minimized at their onset. In addition to efforts at prevention, the greatest service to such children is the work being done in the correction of such defects by plastic surgery. Plastic surgeons must, of course, give due credit to the achievements of orthopedists, dentists, ophthalmologists and dermatologists, whose efforts have made many other deformities amenable to treatment.

Although the effects of deformity are largely psychologic, the ultimate responsibility for their management generally falls on the shoulders of some physician. It is for these physicians that we present this summary of the pertinent facts relating to childhood deformities. Let it be said at the outset that we are not professional psychologists. We are primarily surgeons interested in

the correction of these deformities and our discussion on psychology is derived from personal experience in the management of such cases.

PSYCHOLOGIC EFFECTS OF DEFORMITY

1. *Inferiority and Shame.*—The first and foremost mental effect of deformity seems to be that of inferiority and shame. Children are notoriously observant of the unusual. A great deal of undue attention is invariably directed at any cosmetic abnormality possessed by a

Fig. 1.—*A*, unrepaired single harelip in a girl in her teens. She became excessively self conscious of her deformity at about 10 years of age and quit high school during her freshman year, owing to embarrassment. Subsequently she stayed at home most of the time. *B*, same patient after repair of the lip. There was also a small groove on the right side which was not altered. "Now," she says, "you can't keep me out of things. I can enjoy life like others."

playmate. There is no attempt on the part of a child to conceal his curiosity or to refrain from remarking about the defect publicly or from ridiculing the afflicted companion. Whether his intentions are malicious or sympathetic, he will be openly frank in his discussions and opinions. In a less purposeful manner he will shun the deformed associate or will force him into an inferior social position. A note of permanence is often added to these childhood stigmas by "dubbing" the deformed child with a derogatory nickname which refers to his defect.

It is little wonder, then, that the great majority of deformed children quickly develop a feeling of inferiority and a sense of shame. Probably this mental factor develops much earlier than is generally realized.[1] We recall two infants about 2 years of age with harelip. One would manipulate his lip while looking into a mirror and the other would hide his mouth with a pillow when any one approached. This "inferiority complex" does not usually become a serious problem until the child enters school. He is then brought to realize his difference from the others and finds that he is not able to acquire the intimate companionships enjoyed by his playmates. As the child matures he becomes increasingly more sensitive. When adolescence is reached a sense of despair and a pessimistic philosophy of life admixed with all sorts of peculiar personality traits have been established.

2. *Modifications of Self Expression.*—Lowrey[2] tells us that personality depends on two fundamental drives. The one is for self expression and the other for conformance with accepted social standards. When these two factors coincide, a pleasing personality develops.

When this is applied to the deformed child, the result is obvious. The deformed child may have every mental and physical faculty for self expression possessed by other children but, because of his deformity, he is either restrained by others or avoids the personal contacts necessary for such expression. Activities are either shunned or altered.

Three reactions may result: First, the child may succumb to these obstacles and accept non-expression as his lot. Second, the child may develop a compensatory overabundance of self expression to satisfy his injured ego. Third, under fortunate circumstances the deformed child may replace the suppressed modes of self expression with alternative ones of equal merit.

3. *Antisocial Tendencies.*—A second important factor in the development of personality is the acquisition of popularity. Before a handicapped child can gain recognition of the group he must first overcome the tendency of other children to maintain the natural impression of abnormality and undesirability. Many unfortunates are inclined to give in to these difficulties and to make no effort to become one of the group. Others become resentful toward their obstacles and mistreatment. Blame for their failures is either inwardly or openly placed on all manner of circumstances and people. From the sociologic point of view, this is the dangerous group. These are the children who may develop distinctly objectionable social behavior, since they often cannot obtain desirable employment, may not succeed in matrimonial ventures and will not maintain friendships. As a result, they may resort to criminal activities. Evans[3] has given an excellent fictitious description of a boy who was taunted and ridiculed with the nickname "Barracuda" because of his ugly protruding teeth. This boy's retaliation was to make good his nickname, becoming a relentless criminal. The author suggests "Thus do the cruelties of youth create rogues."

The rarely spontaneous reaction occurs when the handicapped child sets out to make himself popular

Fig. 2.—*A*, cleft palate in the same girl shown in figure 1. *B*, appearance of palate after correction. Palates should be repaired when the patient is 2 years of age to prevent serious speech impediments, which cause untold embarrassment. They can, however, be operated on at any age with great improvement of speech tone, as in this case.

regardless of obstacles. This is a goal toward which mental therapy should be aimed when dealing with handicapped children.

SURGICAL CARE OF DEFORMITIES

1. *Prevention.*—Very little is known about the prevention of congenital deformities. Acquired deformities, on the other hand, are largely preventable through

1. Straith, C. L.: Plastic Surgery; Its Psychological Aspects, J. Michigan M. Soc. **21**: 13-18 (Jan.) 1922.
2. Lowrey, L. G.: The Effects of Physical Handicaps on Personality, Hosp. Soc. Serv. **23**: 237-241 (March) 1926.
3. Evans, E. R. G. R.: Ghosts of the Scarlet Fleet, New York, Farrar and Rinehart, 1931.

safety measures. However, once an injury capable of producing a deformity has been inflicted, the preventive measures employed are entirely dependent on the resources of the physician responsible for its care.

Accidental injuries to the face lead the list of acquired deformities.[4] The management of every injury to the soft tissue of the face requires painstaking care and often demands a slow meticulous repair. Prolonged general anesthesia is often needed to insure the operator's

Fig. 3.—*A*, wide simple harelip in a newborn infant. Note the flatness of the right ala with distortion of the nasal tip and the wide cleft of the alveolar ridge, through which the tongue can be seen. *B*, appearance after repair. Harelips should be corrected during the first few days of life under local anesthesia. A few drops of procaine hydrochloride in each infra-orbital foramen and at the base of the nasal septum will suffice. The shock to the child is negligible and the relief to the parents immeasurable.

unhampered freedom to do careful work. The simplest brush burns should be carefully scrubbed with soap and a soft brush to reduce the danger of tattoo marks of oil or dirt (fig. 5). Embedded cinders or grains of dirt must be plucked out one by one. In deeper wounds, all nonviable tissue should be carefully debrided. Small fragments of bone or cartilage, on the other hand, should seldom be removed. These apparently useless bits rarely sequestrate and are most necessary to maintain the normal contours of the face. Beveled or ragged

Fig. 4.—*A*, double harelip in a newborn infant. Note the absence of a columella, leaving the malposition of the lip attached directly to the nasal tip. This is an almost universal occurrence in double harelip. *B*, correction made by Federspiel method. This procedure usually gives a "cupid's bow" shape to the vermilion border, as seen in this case. We prefer to reconstruct the columella at a later date, using all available tissue for the lip at the first operation.

wounds should be carefully straightened and undermined. All lacerations should be approximated with numerous buried white silk sutures and further perfected with one or two layers of minute subcuticular sutures[5] (fig. 6). Coarse sutures and skin clips cannot be too heartily condemned, since the resulting irregularities and stitch marks constitute deformities in themselves. If interrupted sutures must be resorted to (as around sharply curved lacerations) they should be of fine horsehair in which only the first double twist of a surgeon's knot has been tied—never completed to form a square knot. This permits accurate approximation but allows some expansion to compensate for edema. Surgical incisions on the face should be similarly treated and, in addition, should be planned to follow Langer's lines of skin elasticity. Bony injuries of the face are specialized problems, the discussion of which is too extensive for this paper. Those who are not familiar with their management are referred to more detailed publications.[6] Let it suffice to mention the difficulties in

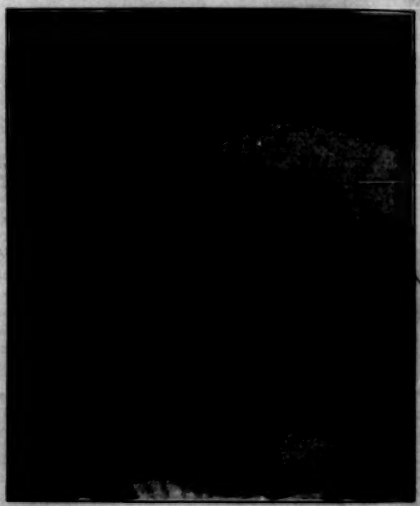

Fig. 5.—Bluish oil and cinder tattoo marks resulting from dirty abrasions acquired several months previously. Such deformities are very common among children who are victims of accidents in the street. At the time of emergency treatment this type of disfigurement can often be minimized by thorough scrubbing, under anesthesia, with soap and a soft brush. Satisfactory correction at a later date is almost impossible with such extensive tattooing as this case presents.

early diagnosis of bony lesions. The presence of excessive edema and the absence of severe pain usually hide the existing injury. This is especially true of nasal fractures but applies also to those of the frontal bone, malars, maxilla or mandible. Every injury to the face, however innocent in appearance, should be carefully checked by inspection, palpation and x-ray examination for possible fractures.

Preventive aspects of the care of burns have been more widely publicized. The use of tannic acid should be a matter of routine. The earliest possible skin grafting of burns should also be a familiar sequence. One suggestion might be made about the prevention of con-

4. Straith, C. L.: Automobile Injuries, J. A. M. A. **109**: 940-945 (Sept. 18) 1937; Management of Facial Injuries Caused by Motor Accidents, ibid. **109**: 101-105 (Jan. 9) 1937.

5. Straith, C. L.: Facial Scars, Am. J. Surg. **36**: 88-90 (April) 1937.

6. Blair, V. P., and Ivy, R. H.: Essentials of Oral Surgery, St. Louis, C. V. Mosby Company, 1936. Straith, C. L., and De Kleine, E. H.: Modern Management of the Fractured Nose, Internat. Abst. Surg., Surg. Gynec. & Obst. **66**: 9-13 (Jan.) 1938. Straith.[4]

tractures: As soon as the immediate shock of the burn has passed, all burned flexor surfaces should be placed in full hyperextension and kept in this position for a prolonged period. This involves considerable ingenuity with splints and traction but will minimize almost every contracture resulting from a burn (figs. 7 and 8).

2. *Earliest Possible Correction.*—When a deformity of any type or severity is present the most important single item in the avoidance of undesirable personality changes is the most complete surgical restoration possible at the earliest date that is feasible. This is a hard and fast rule with no exceptions of which we are aware.

Although this may seem obvious, there are nevertheless many parents who are not so advised. The reason is twofold. First, the average physician sees such cases seldom and hence is not informed on the technical aspects of therapy. Second, plastic surgery has undergone such great advances since the World War that the information contained even in standard textbooks of surgery is often obsolete and misleading.

It is of particular importance to have deformities corrected, if possible, before the child enters school. This is the age of greatest mental and social reaction to deformity, from which every effort should be made to protect the child. Fortunately, there are but few conditions in which at least partial restoration cannot be made during the first five years of life.

Fig. 6.—*A*, extensive facial lacerations resulting from automobile accident. Both inner canthal ligaments were divided and the nasal bones were broken away from the nasal process of the frontal bone. *B*, canthal ligaments were reattached by suturing them together through the nose. Nasal bones were wired to the frontal bone through small drill holes in each. Lacerations were carefully approximated with subcuticular suturing. Note the almost complete absence of visible deformity after healing. We advise more careful attention to all facial wounds and suturing in such a way that stitch marks and scarring are reduced to a minimum. The use of coarse sutures and skin clips cannot be too heartily condemned.

3. *Management of Common Deformities.*—Among the congenital deformities there is a group which allows correction immediately after birth. Most conspicuous of these are the harelips (figs. 1, 3 and 4). In the absence of specific contraindications to surgery, harelip should be corrected during the first week of life. With paregoric for premedication, this repair can be safely and efficiently performed with a simple nerve block anesthesia. We have performed such surgery within twenty-four hours after birth, often with the child sleeping through the operation. The advantage of such early intervention is primarily that the earlier the repair the better the return of both the lip and the bony framework to their normal configuration. This is especially true when there is a cleft of the alveolar ridge. With but few exceptions early repair of the lip results in a spontaneous closure of the alveolar cleft. Second, the younger the infant the more satisfactory the local anesthesia with its added safety. A third indication, one not to be overlooked, is the happiness of parents, who by an early operation are spared months of heartache and embarrassment.

We feel that cleft palates should not be operated on before the child is from 18 to 24 months of age (fig. 2). Earlier than this the palatal tissue is too flimsy to permit adequate repair without tearing. Prevention of speech defects is the paramount aim, and, since most children begin to talk at about 2 years of age, this is the age of choice for surgery of the cleft palate. Even after a satisfactory anatomic repair, speech training with hours of patient practice is required to insure a satisfactory speaking voice. In certain cases in which there is difficulty due to shortness of the palate, the Dorrance "push-back" operation may be performed to give the palate its needed length.[7]

Fig. 7.—*A*, webbing of the fingers and contracture of the little finger from hot water burns. This 4 year old boy was very much concerned about his deformity and would not tolerate any ridicule from his playmates. Because of excellent home training, he developed a great interest in the correction of his deformity and maintained a pleasing personality in spite of his handicap and the necessity for considerable surgery. *B*, same after correction with Wolfe grafts from the thigh. The procedure used here to separate the fingers is identical with that used for congenital webbing. Massage and exercise will improve the usefulness of this hand still further.

Plastic surgery involving the legs or abdomen must usually be delayed until the child passes the diaper age because of the danger of infection. This includes the use of skin or fascial grafts taken from the lower part of the abdomen and the upper part of the thighs (figs. 7 and 11).

Fig. 8.—*A*, contracture of the axilla resulting from a burn. This girl also had extensive contractures of the chest and groin, which were relieved by the insertion of large Thiersch grafts. *B*, same girl after correction with a Z plasty to bring extra skin into the line of contracture. Note that the surgical scars lie across the axilla rather than longitudinally. This prevents recurrence due to shrinkage of the scar tissue.

7. Dorrance, G. M.: The Operative Story of Cleft Palate, Philadelphia, W. B. Saunders Company, 1933.

Lop ears are very common and very annoying deformities (figs 9 and 10). The use of corrective appliances or adhesive tape never reduces their prominence and should never be advised because of the false hope that it creates. Very marked lop ears should be corrected before school age to avoid the malicious torment

Fig. 9.—*A*, hideous lop ears in a young girl which caused her to be nicknamed "flop-ears." Her mother states in a letter: "With all her sweetness, she never volunteered to do anything that would place her directly before an audience because of her hair being thin and her ears protruding. . . . When she ran, her hair would fly over her face and, instinctively, her hands would fly up to her head and hide the ears." *B*, same patient after correction. The mother expresses our point of view when she writes: "I cannot speak or write too emphatically on the absolute advantage of operating on children's deformities before they become of school age. The biggest improvement is in B's disposition. She was always on the warpath if any one looked at her in a questionable manner. She is a much better sport and, consequently, has more girl friends. She used to play with boys almost exclusively because it seemed that they didn't notice her ears, or if they did they rarely commented on them like the girls did. . . . She takes more pride in her appearance. . . . The operation has given her a certain sense of equality with the rest of the little girls."

of derogatory nicknames and teasing. Correction of the less marked varieties depends on the attention they excite in playmates and the child's self consciousness of the abnormality.

Nasal deformities do not usually make their appearance until adolescence (figs. 12, 13, and 14). Hump nose, saddle nose and even the traumatic nasal deformities often do not become apparent until this age, when

Fig. 10.—*A*, lop ears in a boy. Boys are more frequently troubled by this deformity than girls because of the shorter haircuts. Unless corrected before school age, even minor protrusions give rise to great distress and derogatory nicknames such as "jug-handle" or "mule-ears." *B*, same patient after correction. An elliptic area of skin is removed from the back of the ear and the scalp. The necessary amount of cartilage is then removed so that the ears will remain at about a 45 degree angle from the mastoid. Adhesive strapping will not reduce the degree of protrusion and is a waste of time for both physicians and parents.

ossification of the nasal bones is complete. During this period the nose is continually changing shape. Many plastic surgeons prefer to delay nasal plastic operations until after these changes are complete, but it is our opinion that marked deformities, or even minor ones that are causing personality changes, should be corrected in the early teens. At this age children develop an exaggerated impression of personal appearance. Self consciousness flourishes as at no other time in life. It is therefore our policy, if at all feasible, to correct major nasal deformities at this time, even though it may be necessary in some cases to do a secondary plastic operation after the nose has more fully acquired its mature characteristics. Until recently it has been impossible to correct childhood saddle noses with cartilage grafts because of the immaturity and softness of a child's rib cartilage. It is now possible to use preserved adult cartilage and to replace or add to this cartilage at a later date if necessitated by further development of the nose.[8] A minor secondary operation seems insignificant in comparison to the drastic personality changes that often result from self consciousness engendered by a deformity.

We have already mentioned the procedures which should be employed immediately after injury to prevent traumatic disfigurement. If for any reason a deformity of the soft tissue results, the corrective plastic pro-

Fig. 11.—*A*, congenital ptosis of both upper lids. Note the characteristic backward tilt of the head, to facilitate horizontal vision, and the tendency to let the lower jaw drop. *B*, same patient after correction by construction of fascial tendons from the tarsus to the frontalis muscle. The father says: "To us, he does not even appear to be the same child that he was before the affliction was remedied. We feel that we have saved him many hours of suffering from ridicule by his schoolmates had his condition been allowed to remain. Even as young as he is (8 years), A. has told us many times that he is glad we had the operation performed and that he looks like the other boys."

cedures must usually be delayed until about three months after healing is complete. This is to allow for complete disappearance of latent bacterial contamination, which is almost invariably present. Even the slightest or most localized recurrence of infection diminishes the perfection of a plastic repair. Bony injuries, on the other hand, allow an attempt at correction any time up to two or three weeks. During this time the possibility of repositioning the fragments by breaking up fibrous union gives greater hope of a satisfactory result than any subsequent reconstructive operations.

DEVELOPMENT OF SOUND MENTAL HEALTH

Surgical correction in early childhood is the most valuable method of preventing undesirable personality traits. Unfortunately, early correction of the deformity in some instances is impossible; in others it is impossible to obtain a perfect cosmetic result. Therapy, therefore,

8. Pierce, George Warren, and O'Connor, Gerald Brown: Reconstruction Surgery of the Nose, Ann. Otol., Rhin. & Laryng. 47:417 (June) 1938.

must often be supplemented by special training to prepare the child for his handicap. This so-called "special" training is really not special in any sense of the word. It is the same training that might be recommended for any normal child, with emphasis on certain aspects which are most important to the deformed child.

1. *Courage to "Face the Facts."*—First, the deformed child must learn to anticipate difficulties and to be self reliant. Every effort should be directed toward not allowing the child to be spoiled. This training must begin as soon as the child is born by not responding with a burst of attention every time the baby cries or frets or bumps his head; as the child grows older, the same principles should continue in application. It is impossible to enumerate the method of handling each and every situation as it arises.

Since the deformed child is probably destined for one or many operations with some degree of pain, he should be thoroughly prepared for this ordeal. He should not be cajoled into the physician's office dishonestly by being told that it will not hurt or that the "boogerman" will get him if he doesn't go, or by being told that he is "going down town to get a soda." He should be given

Fig. 12.—*A*, marked hump nose with overhanging nasal tip in a young girl. We are told that she did not get along well with other girls since she was always under a delusion that she was being picked on because of her appearance. *B*, same patient after correction by modification of Joseph's technic. This alteration in appearance has done a great deal to sublime her emotional difficulties and to improve her social conduct. The correction of conspicuous nasal deformities at early high school age will make the lives of such girls much happier.

to understand that he may be hurt and should at all times be told by both the physician and his parents exactly what to expect. We have seen children of very tender years who were so concerned about the correction of their deformities that several operations and months of treatment have failed to excite a tear; and we have seen older children howl profanely with anger at the removal of a stitch—both undoubtedly conditioned by their training.

2. *Interpretation of Values.*—The handicapped child is most likely to be deprived of many things commonly sought after for their supposed value; for example, money, friends, esteem, beauty, amusements and romance. Unless such children realize that regardless of group standards in this respect true value depends entirely on the enjoyment they themselves derive, they are apt to do many useless, foolhardy or even dishonest things to attain their desires, especially for friendship. Lowrey [9] describes a handicapped boy with a long history of petty pilfering for the purpose of having money to attract companionships. The Detroit Children's Center has shown us records of a boy with badly disfiguring facial burn scars who stole money for candy to pass around, probably for the same reason. He had been nicknamed "scarface," many children even being afraid to hold his hand in games at school. They also showed us the history of a boy with maladjustment following a severe burn with prolonged hospitalization who gave his toys away to other children. Judge Healy states that "buying their way" is a common origin of criminal activities in handicapped children.[9]

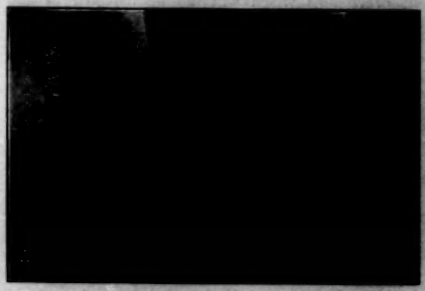

Fig. 13.—*A*, saddle nose resulting from a childhood fracture, giving this boy a psychotic appearance. Athletic injury in childhood is one of the commonest causes of this deformity. At the teen age, personal appearance means a great deal to these children and complexes often result from the self consciousness produced by such a deformity. *B*, after correction with cartilage grafts. Formerly, correction of this defect was impossible owing to the softness of a child's rib cartilage. Now the deformity can be remedied with preserved adult cartilage, as in this case.

Parents of such a child should make every effort to help him readjust his sense of values. Above all, he must learn that true friendship exists only in those who like him in spite of his deformity and irrespective of his possessions or ability to do something to "buy" their favor.

3. *Compensatory Education.*—We have already discussed the importance of speech training for children with cleft palate and we have indicated that such education is almost as important as the surgical repair. Physical therapy and gymnastics are important for children with orthopedic deformities, and contractures from burns, after correction, frequently require muscu-

Fig. 14.—*A*, saddle nose resulting from a blow with a baseball bat. Note the typical appearance of such a defect. *B*, correction with two pieces of rib cartilage, one to support and narrow the bridge and one as a strut to raise and narrow the tip. This girl's high school life has been made infinitely happier because of this reconstruction.

9. Deutsch, H. L.: Crippled Personalities, The Crippled Child 15: 130-133 (Feb.) 1938.

lar rehabilitation. We are told by ophthalmologists that crossed eyes are greatly improved by exercises to develop the use of extra-ocular muscles.

The important phase of compensatory education for most deformed children is that directed toward feasible modes of self expression and, later in life, toward trades and professions which will not be hindered by the deformity. To be successful, this training must follow the child's own interests and talents and should never be forced or predetermined by parents or teachers. Constructive hobbies and employment which keep the child happily occupied in his spare time are of the greatest value. Special training in art, music, athletics, handicrafts and the like should be made available wherever possible.

Whatever type of compensatory education can be worked out, if the child finds one or more satisfying methods of self expression which keep him happily occupied and which receive recognition from others, that child will probably develop along essentially normal lines, regardless of his deformity.

SUMMARY

1. The problem of deformities in children is a very serious one which has failed to attract adequate attention within the medical profession. The importance of deformities lies in the severe mental reactions and alterations of personality which result.

2. Many of the acquired deformities are preventable and all can be minimized by more careful attention to injuries and burns in visible areas of the body, especially the face. The technical information regarding this phase of preventive medicine should be more widely publicized among medical schools and medical organizations.

3. In the presence of deformity, the most important single factor in the avoidance of undesirable personality changes is the most complete surgical restoration possible at the earliest date that is feasible. Wherever possible, childhood deformities should be corrected before the child reaches school age, and a few are best corrected within the first week of life.

4. Many childhood deformities have become amenable to plastic surgery with the development of that specialty which has taken place since the World War. Still other deformities can be corrected by orthopedists, dentists, ophthalmologists or dermatologists.

5. In addition to surgical care, deformed children require more than ordinary "bringing up" at home and at school. They must be prepared to face greater hardships than normal persons and should be given special training to compensate for altered facilities for self expression.

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Every Soldier Was Given a Lemon a Day.—Since ancient times scurvy has often been a scourge of armies in war time. As is well known, the disease is due to the diet being deficient in vitamin C. The patient feels tired, has pains in the joints, the gums swell and bleed. Later the skin becomes covered with petechiae and hemorrhages occur. The soldier can no longer march and is useless. Scurvy was rampant in the Abyssinian army on the Somaliland front. From reports of foreign doctors in the Ethiopian Red Cross, they had over 30,000 cases. There were no cases in the Italian army. What was the reason: A small precaution: every soldier was given a lemon a day.—Castellani, Sir Aldo: Hygienic Measures and Hospital Organization of the Italian Expeditionary Forces During the Ethiopian War, 1935-1936, *J. Roy. Nav. M. Serv.* **24**:304 (Oct.) 1938.

TUMORS OF THE FOURTH VENTRICLE

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The early diagnosis of tumors of the fourth ventricle makes possible a more complete removal of the tumor, greater relief of symptoms, and a lowered operative mortality. Early diagnosis is difficult because tumors of the fourth ventricle produce symptoms of increased intracranial pressure. Our cases in which operation was performed have been reviewed in an effort to emphasize any factors which may help in recognizing the early symptoms and determining the treatment.

There have been very few reviews of tumors of the fourth ventricle in which large series of cases have been analyzed. In the more recent textbooks of neurology, such as those by Wechsler,[1] Grinker [2] or Stewart,[3] the consensus is that tumors of the fourth ventricle produce general symptoms of increased intracranial pressure by obstructing the circulation of cerebrospinal fluid. It is only in the later stages of the growth of the neoplasm that signs referable to the cerebellum, medulla oblongata or pons may be elicited. Parker [4] drew attention to the periodicity of symptoms which some tumors of the fourth ventricle produce. He also discussed the frequency with which some tumors of the fourth ventricle produce sudden death.

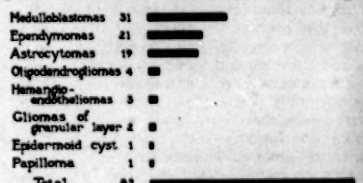

Fig. 1.—Relative frequency of the different types of tumors of the fourth ventricle.

REVIEW OF CASES

Eighty-two cases have been included in this review and only the predominant universal symptoms have been listed. In this survey we found that frontal or occipital headache, nonprojectile vomiting, ataxia, visual disturbances including diplopia and nystagmus, and the usual symptoms of intracranial hypertension were the outstanding clinical characteristics. The most successful surgical results were obtained in the cases in which a diagnosis had been made early and removal of the tumor had been effected before there had been any irreparable injury of the brain.

In our series of eighty-two cases (fig. 1) there were thirty-one medulloblastomas, twenty-one ependymomas,

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Owing to lack of space, this article has been abbreviated for publication in THE JOURNAL. The complete article appears in the authors' reprints.

Read before the Section on Nervous and Mental Diseases at the Eighty-Ninth Annual Session of the American Medical Association, San Francisco, June 16, 1938.

1. Wechsler, I. S.: A Textbook of Clinical Neurology, ed. 1, Philadelphia and London, W. B. Saunders Company, 1931.
2. Grinker, R. R.: Neurology, Springfield, Ill., C. C. Thomas, 1934.
3. Stewart, J. P.: The Diagnosis of Nervous Diseases, London, Edward Arnold & Co., 1931.
4. Parker, H. L.: Tumors Involving the Fourth Ventricle of the Brain, Thesis, 1923.

four oligodendrogliomas, two gliomas of the granular layer of the cerebellum, one epidermoid cyst, three hemangio-endotheliomas, nineteen astrocytomas and one papilloma of the choroid plexus. There was nothing particularly characteristic about the ages of the patients except perhaps in the cases of hemangio-endothelioma, in which the oldest patient was 45 years of age and the youngest patient 17. The rest of the patients were between 2 and 34 years of age.

In seventy-nine of the eighty-two cases, headache was one of the initial symptoms (fig. 2). In thirty-four cases the headache was in the frontal region and in thirty-nine cases it was in the occipital region. In sixty-seven cases vomiting also was one of the initial symptoms; in nineteen cases it was projectile and in forty-eight cases it was nonprojectile. One of the commonest neurologic manifestations was ataxia; in sixty-four cases the ataxia occurred relatively early in the history of the disease. Visual difficulty was a common symptom; thirty-one patients complained of visual impairment and fifty-five complained of diplopia. Hiccup has been a rather predominant symptom in cases reported in the literature but this symptom occurred in only eight of our eighty-two cases. Thirty-four of our patients had a stiff neck. Nystagmus was present in sixty-one cases and a choked disk was found in seventy-four cases. It was rather interesting to know that previous to operation it was necessary to make ventriculograms in only twenty-four cases. In the rest of the cases the localization was so definite that ventriculograms were not necessary. In sixty-two of the cases only part of the tumor was removed but in twenty cases the entire tumor was removed. As one reviews the histories one is struck with the fact that the entire tumor could have been removed in a larger number of cases if relief had been sought earlier in the course of the disease. In most of the cases in which the entire tumor was removed the history indicated that the tumor had been present only a short time. It is also interesting to note that of the thirty-one medulloblastomas thirty were removed partially and one was removed entirely. Of the twenty-one ependymomas thirteen were removed partially and eight were removed entirely. Of the entire group of astrocytomas only four were removed entirely.

The survival period in the cases of medulloblastoma did not seem to depend on the amount of tumor which was removed or on the amount of high voltage roentgen therapy given but on the type of cells found. For example, in one case of medulloblastoma in which microscopic examination of the tumor revealed a large number of astrocytes the patient, who was 34 years of age, lived five years after subtotal removal of the tumor. She was returning to the clinic to undergo a second operation when she died suddenly. In the majority of cases of medulloblastoma the period of survival is from nine months to three years; in cases of ependymoma, however, the life expectancy is much longer, even in cases in which only part of the tumor is removed. One patient with ependymoma lived for eleven years following subtotal removal, before it was necessary to perform a secondary operation. Of the four patients with oligodendroglioma, three lived for from three to four years following operation. One man with hemangio-endothelioma is alive six years and one woman is alive five years after operation.

In reviewing our series of cases it has been noted that during the earlier years of neurosurgery as much of the tumor as possible was removed at operation, regardless of the type of glioma, and roentgen therapy was used regardless of the type of tumor, while in later years, when we were able to distinguish the ependymomas and the medulloblastomas, the operative procedure varied. It also is interesting to note that during the past few years, after we had become more proficient in the diagnosis of fresh sections of the different types of tumor of the fourth ventricle, we have been more prone to carry out total removal, especially of the ependymomas and the astrocytomas, whereas in cases of medulloblastoma as much of the tumor as possible is removed but the radiosensitivity of the cells makes a radical resection less imperative.

PATHOLOGY

It generally has been thought that tumors of the fourth ventricle are more malignant than are gliomas that are found elsewhere in the central nervous system. This may be, and undoubtedly is, true from the clinical and surgical points of view, but cytologically it is not so.

Papillomas of the choroid plexus are rare neoplasms, but they usually grow slowly and can be removed. However, because of their situation in the course of the cerebrospinal fluid they may be implanted elsewhere in the subarachnoid spaces, as described by Hall and

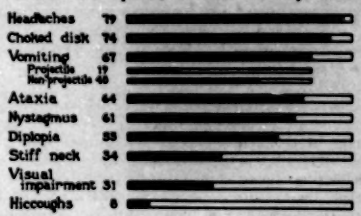

Fig. 2.—Predominant symptoms in eighty-two cases of tumor of the fourth ventricle.

Fentress.[5] Ependymomas that arise from the wall of the fourth ventricle are more common, and we have observed twenty-one cases (not including cases in which operation was not performed) of this type of glioma. As a rule, these tumors grow slowly and lend themselves to surgical removal. In several previous studies we have subdivided ependymomas into three types. The epithelial type contains canals or cavities that are lined with ependymal cells. These ependymal cells simulate epithelial cells. There is another type of growth in which the ependymal cells assume a papillomatous appearance and grow around a core of connective tissue. The stroma frequently undergoes myxomatous degeneration. We have termed this subdivision the "myxopapillary type." There is a large group of ependymomas in which the cells assume no characteristic arrangement and because of its cellular appearance we have termed it a "cellular type of ependymoma." This term is somewhat misleading because cellularity in a general way indicates malignancy, but this group of ependymomas is not necessarily more malignant than the other subtypes. Less than 5 per cent of ependymomas are highly malignant and tend to recur rapidly; however, these malignant ependymomas respond rather readily to roentgen therapy.

5. Hall, G. W., and Fentress, T. L.: Papilloma Choroideum with Diffuse Central Nervous System Metastases, J. Neurol. & Psychopath. 14: 108-113 (Oct.) 1933.

Astrocytomas are rather commonly found arising from the tissues around the fourth ventricle. They do not differ histologically in any respect from astrocytomas found elsewhere in the central nervous system. Cushing[6] studied and described seventy-six astrocytomas that occurred in the neighborhood of the fourth ventricle; no further discussion of this type of tumor is necessary as we cannot add anything to his excellent description.

Hemangio-endotheliomas have been found in all parts of the central nervous system, but they are more

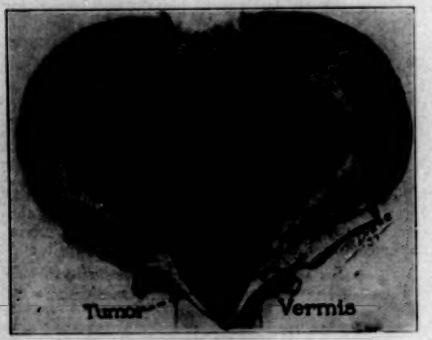

Fig. 3.—Tumor of the fourth ventricle presenting below the vermis and the line of incision of the vermis necessary for adequate exposure.

common in the cerebellum than they are elsewhere. These tumors may be associated with hemangiomas of the retina, telangiectasis of the skin, cysts of the pancreas, liver, kidneys or spleen; this syndrome frequently is referred to as Lindau's disease. A hemangio-endothelioma of the cerebellum is usually a small nodule on the wall of a large cyst in the cerebellum; the cyst is usually the result of an exudate from the vascular tumor. This type of tumor is commonly hereditary and is thus of eugenic importance. Hemangiomas unassociated with the formation of cysts or lesions elsewhere in the body do occur in the cerebellum and fourth ventricle.

It is probably true that medulloblastomas which usually arise in the vermis of the cerebellum of children should be included in the group of highly malignant gliomas. We have studied thirty-one medulloblastomas. These tumors have a tendency to implant themselves on the walls of the other ventricles and to be disseminated widely throughout the subarachnoid space. This fact should be kept in mind when roentgen therapy is undertaken for their relief. Medulloblastomas are supposed to respond better to roentgen therapy than other types of glioma. This is another reason why it is important to distinguish histologically between the various types of gliomas found in and around the fourth ventricle; it is impossible to distinguish the various types either clinically or by gross inspection. The extent of surgical removal and the subsequent treatment and prognosis depend to a large extent on the type of glioma found on microscopic study.

6. Cushing, Harvey: Experiences with Cerebellar Medulloblastomas: A Critical Review, Acta path. et microbiol. Scandinav. 7:1-84, 1930; Experiences with Cerebellar Astrocytomas: A Critical Review of Seventy-Six Cases, Surg., Gynec. & Obst. 58:129-204 (Feb.) 1931.

SURGERY

Operation for the removal of a tumor of the fourth ventricle can be conducted with the patient in the upright or prone position. In most cases the upright position allows for a drier operative field and permits better exposure of the fourth ventricle. If the upright position is used, signs of changes in or instability of the blood pressure rarely develop. We have found that blood transfusion or the intravenous administration of physiologic solution of sodium chloride and dextrose during the operation help to reduce the incidence of instability of the blood pressure. In the upright position the operation can be carried out under either local or general anesthesia. We have found it more advantageous to use ether administered by the intratracheal method or to use a combination of intratracheal anesthesia and local infiltration. The Cushing cross-bow incision has been replaced almost invariably by a simple curved incision which is started below the mastoid process on each side and curved upward to just below the occipital protuberance. Sufficient exposure is thus obtained to remove the bone over both cerebellar lobes, the arch of the foramen magnum and the arch of the first cervical vertebra or atlas. Usually the inferior tonsils of both cerebellar lobes are herniated below the level of the foramen magnum and in a certain number of cases one can observe the lower margin of the tumor below the vermis. In order to obtain adequate exposure of the tumor sometimes it is necessary to divide the vermis (fig. 3). On the other hand, when the vermis and the inferior tonsils of the cerebellum are not herniated it is sometimes possible to remove the entire tumor without incising the vermis. It usually is necessary to aspirate the posterior horn of the lateral ventricle before opening the dura. After the tumor of the fourth ventricle has been removed, air can be injected into the posterior horn of the lateral ventricle; when the air bubbles through into the fourth ventricle it demonstrates that the aqueduct of Sylvius is patent (fig. 4). This is much safer than

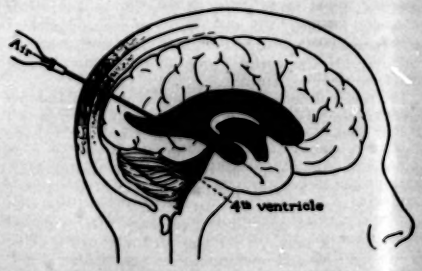

Fig. 4.—Test for patency of the aqueduct of Sylvius and fourth ventricle following removal of a tumor.

attempting to pass a catheter into the aqueduct, as the latter procedure may produce trauma. Postoperative drainage is sometimes advantageous and can be accomplished by either leaving a catheter in the posterior horn of the lateral ventricle or by placing a small collapsible Penrose drain in the fourth ventricle. Postoperative drainage performs several functions. Regardless of the care with which the closure is made there frequently is a small amount of residual blood in the wound. A Penrose drain can safely be inserted through a stab wound in the center of the flap; it is allowed to

remain in place for twenty-four hours and allows the drainage of cerebrospinal fluid to wash all the blood from the posterior cistern. This obviates the necessity for the absorption of blood and also minimizes the tendency to the development of adhesions. We have now been using drainage in these cases for several years and we have found that it lessens the tendency of a postoperative increase of temperature, the formation of cysts and delayed absorption of the fluid around the posterior cistern. Since the advent of the electrosurgical unit we have used it with success in the treatment of all types of intracranial tumors. However, we have also found that the use of the electric cautery around the floor of the fourth ventricle is sometimes followed by a severe reaction; therefore, removal of tumors of the fourth ventricle is carried out with suction and grasping forceps, and we have found that with care in controlling the hemorrhage very little electrocoagulation is necessary.

ADVANTAGES OF EXAMINATION OF FRESH FROZEN SECTIONS DURING OPERATION

Prior to the appearance of the monograph of Bailey and Cushing,[7] in which gliomas were classified histologically into their various subgroups, pathologists and surgeons were satisfied with the diagnosis of a glioma. All these neoplasms were treated alike but it was noted that they varied remarkably in the rapidity of recurrence after partial or even seemingly complete removal. Today the classification of Bailey and Cushing is generally accepted, especially by neurosurgeons. Most pathologists, given adequate time in which to apply special staining methods and to study various sections, can arrive at a correct classification of a glioma which the neurosurgeon has removed. This is important as it helps the surgeon in discussing the prognosis with the relatives of the patient and enables him to anticipate the help that can be expected from roentgen therapy. However, this does not help him in deciding how much of the neoplasm he should attempt to remove at operation. At the clinic the surgeons in general have been taught to, and now do, expect accurate diagnosis by examination of frozen sections of fresh tissue which have been removed for biopsy and they plan their surgical procedures accordingly. Wilson[8] developed this field of surgical pathology about thirty years ago, and since that time MacCarty, Broders and their co-workers have been using fresh frozen sections stained with polychrome methylene blue. In the field of neurosurgical pathology several workers have developed methods for the rapid diagnosis of gliomas. Eisenhardt[9] has successfully used neutral red as a vital stain for smears of gliomas and has described the various types of cells and their processes which are seen in gliomas. Russell[10] has used toluidine blue to stain smears of gliomas. The tissue is smeared on a microscopic slide and fixed rapidly, and the stain is applied. This method also demonstrated the various types of cells and their processes. We have been using polychrome methylene blue to stain frozen sections of fresh specimens of brain tumors for many years and have found it satisfactory. Aside from the fact that we have become used to this method, it seems to us that it has the advantage of allowing us to study not only the individual cells but also the architecture of the neoplasm. We also can study the relation of the cells to the walls of blood vessels, changes in the blood vessels, especially proliferation of endothelial cells of the intima, and necrosis, mitotic figures and so on. The stain does not, as a rule, demonstrate all the processes of the cells, but diminishing the light which passes through the section makes it possible to visualize most processes. We keep most of our fresh frozen sections for several days, at least until the permanent sections have been made. This procedure allows us to compare the fresh sections with the fixed sections and is useful in teaching. The fresh sections are mounted in a 5 per cent solution of dextrose, and the edge of the cover glass is painted with "duco," which prevents evaporation of the aqueous solution that is used for mounting. The sections may be preserved much longer if they are placed in a dark cold place.

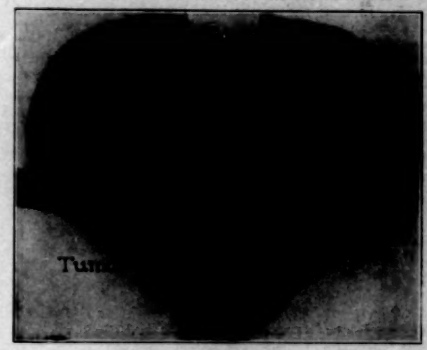

Fig. 5.—Hemangio-endothelioma exposed by dividing the vermis.

The object of operation in cases of tumor of the fourth ventricle is to relieve the internal hydrocephalus or the increased intracranial pressure. Although a conservative operation which opens the lower portion of the aqueduct of Sylvius may be followed by temporary relief, if the surgeon is made aware of the malignancy of the tumor during the operation his method of attack and his attempt at radical removal are modified by the cytologic character of the tumor encountered.

REPORT OF CASES

Case 1.—A man aged 49 came to the clinic complaining of headache, dizziness and failing vision. Frontal headaches had begun six months previously and a month later he had been seriously ill with influenza. Following this he had felt tired constantly, had had to force himself to work, and nearly every day he had had a mild frontal headache. The headaches had become extremely severe in the six weeks before his admission and he had had to stop work on account of dizziness. His vision gradually had become blurred and the headaches had become more severe. Examination revealed bilateral choked disks of 1 diopter in the right eye and 3 diopters in the left eye. Neurologic examination revealed a slight increase of all reflexes on each side and some incoordination and ataxia. Ventriculography revealed bilateral internal hydrocephalus and dilatation of the third ventricle. During a suboccipital craniotomy the bone was found to be very thin and when the dura was incised a large reddish vascular tumor could be seen lying below the vermis, which was divided. A specimen of the tumor was removed for biopsy. Histologic examination of this speci-

7. Bailey, Percival, and Cushing, Harvey: A Classification of the Tumors of the Glioma Group on a Histogenic Basis with a Correlated Study of Prognosis, Philadelphia, J. B. Lippincott Company, 1926.
8. Wilson, L. B.: A Method for the Rapid Preparation of Fresh Tissues for the Microscope, J. A. M. A. 48:1737 (Dec. 2) 1905.
9. Eisenhardt, Louise C.: Diagnosis of Intracranial Tumors by Supravital Technic: Further Studies, Arch. Neurol. & Psychiat. 28:299-319 (Aug.) 1932.
10. Russell, Dorothy: Personal communication to the authors.

men, which was made during the operation, disclosed that the tumor was a typical hemangio-endothelioma. The growth was dissected from below upward; it was found to fill the fourth ventricle. Many large vessels entered the tumor from the cerebellum. These were ligated and Cargile membrane was packed about the tumor. It was necessary at this point to close the wound. The second stage of the operation was performed two weeks later, when the tumor was removed (fig. 5). After a rather stormy convalescence the patient returned home and was able to resume his duties as editor. When he was seen one year later his general condition was excellent, and two years later he was out making campaign speeches and working as hard as ever. It is now seven years since his operation and he is perfectly well.

Histologic examination revealed that the tumor contained numerous blood spaces, both large and small. The spaces were lined with endothelial cells; in some of the spaces the endothelial cells were swollen and cytoplasm was vacuolated; staining with sudan III disclosed that the vacuoles were filled with lipoids. In some regions the blood spaces were missing and there was an excess of loose connective tissue. However, there was no dense fibrous tissue or blood pigment. Perdrau's silver stain for connective tissue revealed that the reticulum radiated away from the larger blood spaces like the spokes of a wheel.

Fig. 6.—Ependymoma attached on the left side.

There were no evidences of hemangiomas of the skin or retina or of disease of the pancreas or kidneys, and there was no cyst associated with the tumor in the cerebellum; therefore we are not suggesting that this case is an example of Lindau's disease.

In the following case a tumor of the fourth ventricle was diagnosed early and removed entirely. Examination of fresh tissue during the operation disclosed that the tumor was an ependymoma. The postoperative course, which was thereby shortened, was uneventful.

Case 2.—A girl aged 18 years was referred to the clinic because of headache, vomiting and pain in the neck. She had been perfectly well until ten months before she came to the clinic, when she had begun to have severe occipital headaches. The headaches had been mostly on the right side, had occurred at any time of the day and had lasted from two to three hours. They gradually had receded until they had occurred every two weeks, at which time they had awakened her in the morning. They had been associated with vomiting which had not been projectile or associated with nausea. Immediately after vomiting the headache had been relieved. Five months previous to her examination she had entered college and her vomiting had been attributed to hyperacidity, which had improved temporarily following the daily administration of alkalis and non-acid forming foods. Two weeks before she was examined at the clinic she had noted a dull pain in the back of the neck; the pain had been associated with the headaches. She had had one attack of hiccups. Examination disclosed a slight tremor of the eyelids and hands and tenderness on percussion of the occipital region of the skull. There was no bruit but the neck was slightly stiff. Examination of the eyes revealed that vision was 6/10 in both eyes. Examination of the ocular fundi revealed a choked disk of 7 and 8 diopters in the right eye and a choked disk of 6 and 7 diopters in the left eye. Examination of the visual fields revealed enlarged blind spots in both eyes. Roentgenograms of the head revealed intracranial pressure and pressure erosion of the sella turcica. A suboccipital craniotomy revealed a tumor of the fourth ventricle. The tumor, which was granular and reddish, extended below the herniated inferior tonsils to the level of the second vertebra. Examination of frozen section, which was stained with polychrome methylene blue, revealed that the tumor was an ependymoma. This examination was made during the operation. The tumor, which was attached to the floor of the fourth ventricle on the left side, was removed completely (fig. 6). Following the operation the patient had a very satisfactory convalescence; on the eleventh postoperative day the choked disks were markedly diminished and her general condition was excellent.

Histologic examination of the fresh tissue which was removed at operation revealed a typical cellular type of ependymoma. The cells were closely packed together and were remarkably uniform in appearance. The nuclei were larger than those of astrocytomas, and the distribution of the chromatin granules was different. The architecture of the tumor also was characteristic as the cells were distributed uniformly throughout the tumor except around the blood vessels, where there was an acellular homogeneous zone. When the polychrome methylene blue stain was used we were unable to see fibrils around the blood vessels. There were a few mitotic figures which suggested that the neoplasm was actively growing, but it is not on this account that we have used the term "cellular type of ependymoma." These observations were confirmed by examination of sections which were stained with hematoxylin and eosin, with Mallory's stain (phosphotungstic acid hematoxylin), with Cajal's gold chloride and sublimate method, and with Hortega's method (ammoniacal silver carbonate). In addition, we found some regions in which the cytoplasm of the cells seemed to be missing; in these regions the tumor had a honeycomb appearance which usually is associated with oligodendrogliomas. We have noted this tendency in a previous study but only occasionally have we been able to prove that the cells are really oligodendroglial cells. We have preserved the original sections which were stained with polychrome methylene blue by the method we have described elsewhere, namely the simple expedient of sealing the coverglass with a solution of "duco." In the sections of the fresh tissue there were no regions in which the cells had a honeycomb appearance, yet the fresh sections had been cut from the same block of tissue which was fixed in solution of formaldehyde embedded in paraffin and used for the sections which were stained with hematoxylin and eosin. It would thus seem that the honeycomb appearance is the result of fixation and not the normal status of the cells.

Ependymomas of the fourth ventricle grow slowly and sometimes produce localizing signs before they produce any evidence of intracranial hypertension. In the following case, throbbing pain and dizziness which occurred on turning brought the patient to his physician, who suspected a tumor of the brain:

Case 4.—A man aged 40 came to the clinic because of severe throbbing in the back of his head. Ten months previously, while playing golf, he became dizzy when he stooped over and shortly after this he had begun to vomit after almost every meal. Six months before he came to the clinic he had begun to have a severe thumping pain at the base of the skull; he had felt dizzy on arising and sudden attacks of dizziness and vomiting had occurred when he turned suddenly. The roentgenograms of the head were negative; examination of the eyes revealed that vision, the visual fields and the ocular fundi were normal. Neurologic examination revealed mild nystagmus and slight incoordination on the left side. Ventriculograms revealed internal hydrocephalus. A suboccipital craniotomy disclosed a large granular tumor which projected below the vermis and to the level of the first cervical vertebra. Biopsy, which was performed during the operation, disclosed that the tumor was an ependymoma. It was possible to elevate the

lower portion of the tumor and the entire tumor was removed in small pieces. Three years after the operation the patient was well and working every day.

Histologic examination revealed that the greatest portion of the tumor was of the cellular subtype but that here and there throughout the neoplasm were cavities or spaces that were lined with ependyma. The cells lining these spaces had a low columnar, epithelial appearance. The tumor was essentially a slowly growing one, as there was no evidence of mitotic figures or hyperchromatic nuclei and the cells and the nuclei were remarkably regular in size. In a few places the cytoplasm of the cells seemed to be missing and the tissue had a honeycomb appearance commonly seen in oligodendrogliomas.

The malignancy of a medulloblastoma is not the same in all cases; in some adults the malignancy is low. These tumors also are radiosensitive; therefore, partial removal and irradiation frequently are followed by prolonged relief.

CASE 5.—A woman aged 27 came to the clinic complaining of pain in the head in the occipital region and loss of vision. Eight months before she came to the clinic she had noticed pain in her head on bending forward. The pain had become worse and for four months before she came to the clinic she had been having projectile vomiting with the headaches. One month previous to her examination at the clinic she had begun to have intermittent diplopia and blurring of vision, associated with a roaring sensation in the left ear. Acute bilateral choked disks of from 3 to 4 diopters were found and neurologic examination revealed a moderate ataxic gait and slight incoordination. Suboccipital craniotomy was performed; the cerebellar convolutions were normal but the inferior tonsils were herniated through the foramen magnum. Incision of the vermis disclosed a large tumor that filled the fourth ventricle (fig. 8). Microscopic examination of a specimen of the tumor, which was made during the operation, revealed that the lesion was a medulloblastoma. It contained spongioblasts and had the appearance of a very malignant tumor with mitotic figures. Subtotal removal of the tumor was accomplished with the electrosurgical unit, sucker and curet. Air then could be seen bubbling through the aqueduct of Sylvius and into the fourth ventricle. Following the operation the patient was given three courses of high voltage roentgen therapy. She remained perfectly well for one year after the operation. She lived six years after the operation. One course of roentgen therapy was given each year. The patient was perfectly well; she was able to do her own housework and to work in her garden. She died suddenly a few days after the symptoms recurred.

IRRADIATION

There is probably no other group of tumors in which postoperative irradiation is as important as it is in the tumors of the cerebellum and fourth ventricle. At times we are dealing with a tumor which is highly radiosensitive, that is, a medulloblastoma, and in which it has been suggested that no operation should be done but that the patient should be subjected to at least three courses of irradiation. In some of the foreign clinics, wherever increased intracranial pressure without localizing signs develops in a child, irradiation is advised without operating. We do not agree with this procedure because in some cases of the more radioresistant types of tumor in which the history reveals that the tumor has been present only a short time it can be removed and a cure accomplished. However, in view of the fact that the majority of tumors which occur in the posterior fossa during childhood are medulloblastomas, irradiation after operation is usually indicated.

Cutler, Sosman and Vaughan [11] reported twenty cases of cerebellar medulloblastoma and reviewed sixty-one cases reported by Cushing in 1929. In all except one case the diagnosis was confirmed by biopsy or by microscopic examination at necropsy. Medulloblastomas implant themselves in the pathway of the cerebrospinal circulation. These authors recommended irradiation of the entire cerebrospinal axis and the use of high voltage roentgen therapy and the administration of a maximal dose to each portal. Because of the sensitivity of the tumors to roentgen therapy the authors said that roentgen irradiation can be used as a therapeutic method for the differential diagnosis of cerebellar lesions which affect children. They recommended a trial of roentgen therapy before cerebellar exploration is undertaken.

Elsberg and Gotten [12] reviewed a series of twenty-three histologically verified medulloblastomas to determine whether conservative surgical procedures, which were characterized by wide decompression and followed by roentgen therapy, or more radical operation or surgical eradication of the tumor plus roentgen therapy gives the best results from the standpoint of operative mortality and survival. They found that the average period of survival of all patients who recover from one or more operations was seventeen and three-tenths months. In the ten cases in which only a conservative operation was done the average period of survival was seventeen and a half months, which is a factor of importance in favor of conservative operation for cerebellar medulloblastomas. They expressed the opinion that the immediate effect of the radical operation is apparently produced by the decompression rather than by the complete removal of the tumor and that the length of survival is a consequence of the roentgen therapy of these radiosensitive growths. They concluded that in the treatment of cerebellar medulloblastoma conservative operation has produced better immediate results than has an attempt at radical extirpation and that from the standpoint of length of survival the former procedure has produced results which are at least as good as those obtained with the radical method.

Fig. 8.—An unusually well encapsulated medulloblastoma of a low grade of malignancy.

Elsberg, Davidoff, and Dyke [13] have advised roentgen irradiation of tumors in the operating room while the wound is open. They said that medulloblastomas, which occur frequently in the posterior cranial fossa of children, have a vascular base which practically can

11. Cutler, E. C.; Sosman, M. C., and Vaughan, W. W.: The Place of Radiation in the Treatment of Cerebellar Medulloblastomata: Report of Twenty Cases, Am. J. Roentgenol. 35: 429-453 (April) 1936.

12. Elsberg, C. A., and Gotten, Nicholas: The Results of Conservative Compared with Radical Operations in the Cerebellar Medulloblastomas: An Analysis of Twenty-Five Cases, Bull. Neurol. Inst. New York 3: 33-52 (June) 1933.

13. Elsberg, C. A.; Davidoff, L. M., and Dyke, C. G.: The Roentgen Treatment of Tumors of the Brain in the Operating Room by Direct Radiation Through the Open Wound, Bull. Neurol. Inst. New York 6: 19-32 (Jan.) 1937.

never be removed completely and said that a survival period of more than two years is exceptional. Medulloblastomas are very radiosensitive and the results of some occipital decompression for relief of obstructive hydrocephalus, followed by roentgen therapy without any attempt at radical removal of the growth, are as good as if not better than the removal of a large amount of tumor. In all cases of cerebellar tumors they advocated the direct roentgen therapy while the wound was open.

Sachs, Rubinstein and Arneson[14] expressed the opinion that medulloblastomas are definitely influenced by roentgen therapy. In a series of thirty-five cases of medulloblastoma, fifty-two operations were performed. The mortality on the basis of the number of cases was 28.5 per cent. Of the patients who were operated on but who did not receive roentgen therapy, one lived seven months and all the rest died within a shorter time. In the group of cases in which radical operation and roentgen therapy were used, one patient lived fifty-four months, one is still living at the end of seventeen months and one is still living at the end of fourteen months. The operative notes reveal that in this group of cases a thorough extirpation had been done. Necropsy on the patient who lived twenty-nine months disclosed a small local recurrence in the cerebellum. This had not caused any symptoms. Necropsy also disclosed an extensive tumor meningitis which extended the entire length of the spinal cord. They drew the conclusions that roentgen therapy should be preceded by radical operative removal and that high voltage roentgen therapy prolonged the life of patients who have a medulloblastoma.

SUMMARY

Tumors of the fourth ventricle do not produce a typical clinical syndrome. However, increased intracranial pressure, a high degree of choked disk, vomiting without nausea, and intermittent severe headache should always suggest a tumor of the fourth ventricle. The treatment consists of suboccipital craniotomy with removal of as much of the tumor as is compatible with the condition of the patient. Postoperative roentgen therapy should depend on the type of tumor found and the amount removed at operation. The use of frozen sections and staining with polychrome methylene blue have made possible the differential diagnosis of tumors of the fourth ventricle at the operating table. This aids in determining the proper surgical procedure.

ABSTRACT OF DISCUSSION

DR. F. R. TEACHENOR, Kansas City, Mo.: From these statistics one is impressed with the fact that the tumors encountered are not an exceedingly encouraging group. The statistics are not exactly comparable on account of the different varieties of their statistical tables, with the exception of the astrocytomas, which one naturally expects to give a better prognosis. The prognosis in the medulloblastomas of the fourth ventricle is not a good one. I will confine my remarks to the practical side of the treatment of tumors of the fourth ventricle as far as irradiation and surgery are concerned. Davidoff and Dyke, Cutler and Sosman, and others are recommending the use of irradiation entirely in the treatment of the medulloblastoma. It seems obvious from the symptoms as outlined by Drs. Craig and Kernohan that there are positive means of preoperative diagnosis of the medulloblastoma over any of the other varieties of posterior fossa tumors. In addition to that, one must consider the cases in the stage in which one receives them. Certainly if the patient is received in the early stage before pressure signs are present one is entirely justified in utilizing irradiation preoperatively. If the patient improves under irradiation, I think it quite consistent that operation be postponed or probably not performed. Most of the patients that I see come in a late stage of compression and approaching a terminal condition. In these instances I do not believe that one is justified in utilizing the x-rays alone but feel that operation is the method of choice and, if the medulloblastoma is the tumor found by microscopic examination, postoperative irradiation of the entire cerebrospinal axis is the best method of treatment. I agree that with the medulloblastoma in childhood below the age of 15 the prognosis as to life is much shorter than above 15. In my experience, two years or two and one-half years is about the limit in children under 15, while of those above I have one that lived five and one-half years with rather interesting symptoms. The patient was first operated on at another clinic for a cerebellar tumor the character of which I did not know, but I saw her some three and one-half years afterward with signs of a tumor of the spinal cord, the symptoms of which came up rather suddenly. I suspected a medulloblastoma, but on account of the suddenness of the onset of the symptoms I removed a pedunculated tumor from the tip of the conus and extended the active life of the patient for a year and a half. I believe that in most instances, particularly in the later stages of the disease, the operative procedure followed by irradiation is the choice, and even though it does cause additional seeding, if the tumor is removed in sufficient quantities to break the block and reestablish the circulation of the cerebrospinal fluid certainly the life period is extended thereby, and with irradiation it may be prolonged.

DR. F. C. GRANT, Philadelphia: In their discussion of the midline cerebellar tumors, the authors did not stress a clinical symptom which is important. Children with cerebellar tumors almost invariably have enlargement of the head. As the tumor interferes with the cerebrospinal fluid circulation, the lateral and third ventricles increase in size and intracranial pressure is raised. In children with incompletely ossified suture lines the sutures separate and the head enlarges. This separation of the sutures often accounts for the absence of choked disk and delays diagnosis. The symptoms of midline cerebellar tumor are notoriously fugitive and difficult to confirm. Absence of choked disk is enough to convince most pediatricians or neurologists that an intracranial lesion is not the cause for the clinical symptoms. But given a child who has bouts of morning headache and vomiting, is clumsy and falls off his roller skates or bicycle with increasing frequency, and in whom on examination nystagmus is absent and signs of incoordination vague and generalized, one should always examine the head. If it seems large and if a cracked-pot sound can be demonstrated, separation of the sutures has occurred and the suspicion that an intracranial lesion exists should be definitely entertained.

DR. W. McK. CRAIG, Rochester, Minn.: One of the penalties of trying to crowd into fifteen minutes a review like this is that some of the important points are omitted, and it is gratifying to have the presentation rounded out by such generous discussion. In treating any type of tumor of the brain the sociologic aspects must be considered. In contemplating surgical measures, one should not forget that they depend on the condition of the patient and on the stage of development of the symptoms. We would like to operate on these patients in the early stages of development of the tumor and remove all of it, but many factors decide whether the operative procedure should be radical, modified or conservative, and sometimes palliative irradiation is indicated, depending, as Dr. Teachenor mentioned, on the stage of development of the tumor at which the patient is brought in for treatment. The value of decision at the operating table, I think, has been greatly enhanced by biopsy and diagnosis of fresh tissue. Knowledge of the type of tumor helps decide between radical and conservative operations. Surgical limitations were illustrated by the fact that, of the eighty-two cases, in only twenty were the tumors totally removed. Of the cases of medulloblastoma, there were thirty in which subtotal removal, and one in which total removal, were influenced by diagnosis of fresh tissue. In the twenty-one cases of ependymoma, there were thirteen subtotal removals and eight total removals, the condition of the patient limiting the opera-

14. Sachs, Ernest; Rubinstein, J. E., and Arneson, A. N.: Results of Roentgen Treatment of a Series of One Hundred and Nineteen Gliomas, Arch. Neurol. & Psychiat. 35:597-615 (March) 1936.

tion. In the nineteen cases of astrocytoma, there were fifteen in which removal was subtotal and four in which it was total, and in all three cases of hemangio-endothelioma removal was total. Whenever any uncertainty existed as to whether tumor tissue was left behind, removal was indexed as subtotal. I should like to leave the impression that the operative procedure and the results of the operation depend a great deal on the condition of the patient. Our best results were realized in those cases in which diagnosis was made early, a radical procedure was carried out and there had been no irreparable damage to the brain. Dr. Grant's point is very important. We neglected to comment on the appearance of the patient, especially the size and position of the head. One must consider the appearance and the general condition of the patient in determining the surgical approach to the problem.

AN ACUTE INFECTION OF THE RESPIRATORY TRACT WITH ATYPICAL PNEUMONIA

A DISEASE ENTITY PROBABLY CAUSED BY A FILTRABLE VIRUS

HOBART A. REIMANN, M.D.
PHILADELPHIA

Infections of the respiratory tract are among the most common afflictions of mankind, and pneumonia, which occasionally accompanies or follows them, is the third most common cause of death in the United States. Any progress made in the knowledge of such infections is therefore urgently needed.

Only recently has the physician been armed with comparatively simple methods for the diagnosis of one of these diseases, epidemic influenza, which is now known to be caused by a filtrable virus. Methods for isolating and identifying the virus of the common cold are still too complicated for the average clinical laboratory in routine diagnosis. The discovery of the causative agent of influenza permits separation of the disease as an entity from the undifferentiated group of infections of the respiratory tract and provides a standard, so to speak, against which other entities may be compared. The discovery also confirmed a long established impression gained on clinical and epidemiologic grounds that influenza is a disease entity caused by a filtrable virus.

From studies already made on the group of acute infections of the respiratory tract other than influenza, it is predictable that it is composed of a number of specific entities probably caused by filtrable viruses which remain to be identified, perhaps by methods similar to those by which the viruses of influenza and the common cold were discovered. Efforts in this direction no doubt will eventually make possible a classification of this important group of infections such as has been made with fruitful results in the case of pneumonias of bacterial origin.

With these points in mind, I studied a group of seven cases of an unusual form of tracheobronchopneumonia and severe constitutional symptoms which occurred in 1938. The clinical symptoms and signs of the infection were so uniform in these cases and yet so different from those of other common diseases that I was led to regard the disease as an etiologic entity caused by an unknown agent. I have learned from my colleagues that similar cases were encountered by them in New York, Boston, Philadelphia and elsewhere in 1938. The condition was usually called influenza.

From the Jefferson Medical College and Hospital.

REPORT OF CASES

CASE 1.—H. M., a man aged 44, did not feel well March 3 while in New York. The next day he felt chilly and hot alternately and noticed a slightly sore throat. He went to bed for two days and was thought by his physician to have influenza. There was profuse sweating. He returned to work but on March 7 had a recurrence of chilly sensations and perspiration. Cough with a slight amount of yellowish sputum developed. He then came to Philadelphia, and entered the hospital on March 8, about the fifth day of illness, as a patient of Dr. Guy Nelson.

He was a robust, severely ill man. His face was flushed and his pharynx inflamed. There were occasional periods of coughing, but no sputum was raised. The heart and abdomen were normal. A few rales were present in the interscapular regions. The temperature, pulse rate and respiratory rate are shown in figure 1. The leukocytes numbered 8,000. A diagnosis of tracheobronchitis was made.

During the first week of observation the temperature remained continuously high, but in contrast the pulse rate was low. There were a frequent hacking cough with scanty mucopurulent sputum, sweating, slight hoarseness, restlessness, abdominal distention, constipation and drowsiness. The patient complained of headache, photophobia and general aching. The breath sounds were suppressed in the base of the left lung posteriorly, where a few rales were heard. The number of leukocytes rose to 11,800. Typhoid was strongly suspected, but no agglutinins for Bacillus typhosus were ever demonstrable, and the bacilli were not found after repeated blood cultures and stool examinations.

About the twelfth day of illness the patient was drowsy, perspired freely and coughed occasionally, and the hoarseness had progressed to aphonia. The abdomen was distended, and

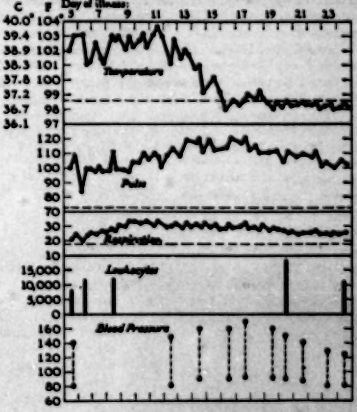

Fig. 1 (case 1).—Clinical course. The pulse rate, respiratory rate and leukocyte count were comparatively low in the first week.

the pulse and respiratory rates were increased (fig. 1). The conjunctivas were injected, the tongue was heavily coated and anorexia was present. Two diarrheal bowel movements occurred. The patient was apprehensive at times, drowsy at others and disoriented, especially at night. With the abdominal distention there was a brief attack of acute pain in the left upper quadrant. The patient was extremely ill, and typhoid was still suspected although no proof was forthcoming. A roentgenogram of the lungs showed a faint increased mottling, especially in the right lung.

For the next few days the temperature declined and the pulse rate rose. Profuse sweating continued. Tachypnea continued, and slight dyspnea and cyanosis developed. Aphonia persisted, and the nasal passages became obstructed by acutely inflamed and swollen mucous membranes. The pharynx was dry and

inflamed. Many rales in the base of the left lung and a few in that of the right were now heard. The breath sounds were harsh, but no other abnormal signs except pleural friction were audible in the left axilla. Another roentgenogram, made on the sixteenth day after the temperature reached normal, showed an increased mottled density in both lungs, but particularly on the right side, suggestive of diffuse pneumonia. Garglings

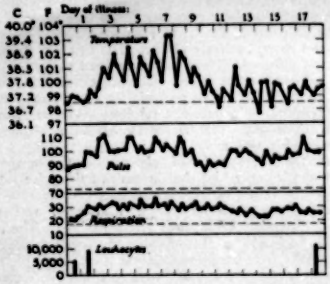

Fig. 2 (case 2).—Clinical course from the first day of illness.

of material from the nasopharynx were made at this time and dropped into the nares of ferrets by Drs. Stokes and Francis, but no virus was isolated.

Numerous rales in the base of the left lung and fewer in that of the right persisted with diminishing intensity. Tachycardia and tachypnea persisted for three weeks after the temperature became normal. The patient lost 12 Kg. (27 pounds) in weight.

Two weeks later, because of persistent aphonia, laryngoscopic examination was performed by Dr. Calvin Fox. The epiglottis, arytenoid processes, vestibule of the pharynx and tracheal wall were inflamed. The vocal cords were congested and thick. Roentgenograms made on the twenty-seventh and seventy-second days showed that the mottling had disappeared, but a haziness over the base of the left lung suggested pleural thickening.

Laboratory Data.—The leukocyte counts are shown in figure 1. The percentage of polymorphonuclears was found to be increased to 80 or 90 at each examination. Three blood cultures were negative, and agglutinins for Bacillus typhosus, Brucella melitensis and Pasteurella tularensis were absent. Numerous examinations of sputum and material obtained by swabbing the throat showed the usual nasopharyngeal flora, with Streptococcus viridans, Streptococcus hemolyticus, diphtheroids, staphylococci, gram-negative cocci and bacilli and on one occasion pneumococcus type XIX. No tubercle bacilli were found. Febrile albuminuria was present. Blood serum obtained on the sixteenth, thirty-third and seventieth days after the onset of illness and tested by Dr. Francis did not contain antibodies for epidemic influenza virus.

Fig. 3 (case 2).—Appearance on the seventh day of illness. There is a diffuse mottling throughout both lungs, more marked in the right. The interlobar pleura on the right is thickened.

Summary.—This patient became ill with the symptoms of a sore throat, recovered to some extent but became worse again and exemplified the so-called typhoid state with tracheitis and bronchitis. Although rales were present in the lungs early in the course of the disease, symptoms and signs of massive invasion were delayed until after the temperature had declined, about the twelfth day. The signs persisted long after the fever disappeared. These observations and persistent laryngitis, hoarseness, aphonia, sweating, dyspnea, cyanosis and drowsiness were the main features. The illness lasted sixteen days.

Case 2.—M. S., a man aged 39, had a herniorrhaphy performed February 25. Convalescence was uneventful until March 11, when he thought he was getting a cold. There was stuffiness of the nose, and pain developed in the left side of the chest. No abnormal signs were present in the lungs. The patient was allowed out of bed, but his discomfort persisted. March 13 he felt generally uneasy, ached all over and felt "grippy." A drenching sweat occurred that night and another on the following night. Fever was noted first March 14 and increased to 38.3 C. (101 F.) the next day, as shown in figure 2. On the third day of fever, sharp pain developed in the lower anterior part of the right axillary region, which was worse on breathing. It became so severe that opiates were required to control it. A few rales were present in this area. The respiratory rate increased to 32. The pharynx was inflamed but was not painful. The leukocytes numbered 9,000.

During the next few days the number of rales increased and the breath sounds were suppressed in the base of the right lung. Occasional pain occurred in the root of the neck on the right side suggestive of the referred pain of diaphragmatic pleurisy. There was no cough and no sputum. Rales appeared in the base of the left lung. Epistaxis occurred on the sixth day.

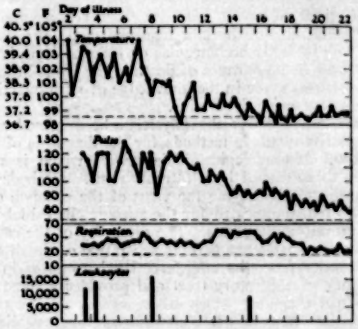

Fig. 4 (case 3).—Clinical course.

The abdomen was distended and constipation was present. A roentgenogram of the chest (fig. 3) made on the eighth day showed diffuse increased mottled shadows throughout both lungs, more prominent on the right side, suggestive of diffuse pneumonia (Dr. Karl Kornblum). The interlobar pleura was thickened on the right side, and density at the base suggested a small collection of fluid. At about this time the patient complained of pain and numbness in the right wrist, elbow and shoulder. His legs and teeth ached. There was profuse sweating most of the time. One night his gown was changed fourteen times. Physical signs of fluid appeared in the base of the right lung. Dyspnea and cyanosis appeared and became distressing, but there was no cough or sputum. Nasopharyngeal secretions were obtained about this time by Drs. Kinney and Magill and inoculated intranasally into ferrets, but no virus was recovered. A blood culture was sterile. The temperature began to decline after the eighth day, and the patient improved. Dyspnea, cyanosis and sweating diminished. Atropine sulfate controlled the excessive perspiration. A symmetrical patch of hyperesthesia 3 or 4 inches in diameter was noted on the anterior surface of both thighs. The patient began to cough occasionally on the eleventh day and felt that his nose was plugged up again.

A small fleck of blood-tinged tenacious sputum was raised, which contained Streptococcus viridans, Streptococcus hemolyticus, pneumococcus type XIX, diphtheroids and gram-negative cocci.

Thoracentesis was performed, and 300 cc. of bloody, turbid fluid, which was sterile on culture, was obtained. The process was repeated three days later and again on the twenty-second day. Fluid of similar quality and quantity was removed. On the nineteenth day a roentgenogram showed a diminution of the density of the infiltration seen previously. There was an irregular density at the base of the right lung, and there were a few patches of density in the base of the left lung. Low grade fever persisted. Several weeks later a trocar and drain were inserted by Dr. Nassau. The fever increased, and on the fifty-third day the patient suddenly died. Necropsy was not performed.

This patient was observed from the first day of illness; this began as an ordinary infection of the respiratory tract, but profuse perspiration and severe pleuritic pain developed. Evidence of pulmonary invasion appeared about the fourth day and rapidly involved both lungs. Sterile pleural effusion was present. The chief features were the diffuse atypical pneumonia, drenching sweats, dyspnea, cyanosis, severe pleuritic pain and a minimal amount of cough and sputum.

Nasopharyngeal washings were obtained on the eighth day of illness, too late, perhaps, according to the experiences of British investigators,[1] for a virus to be obtained. The blood serum did not contain antibodies for the virus of epidemic influenza.

Experience with these two patients led me to suspect that I was dealing with an unusual form of infection, so that when the next patients were seen, while the first two were still under observation, attempts were made to obtain a virus earlier in the disease. March 20 and March 22, nasopharyngeal washings were obtained at my request from patients 1, 2, 3 and 7 by Drs. Stokes and Kinney of the University of Pennsylvania and Drs. Francis and Magill of the Rockefeller Institute.[2]

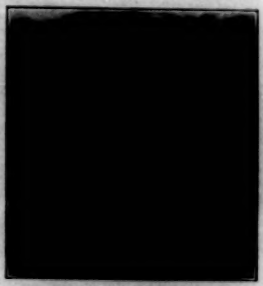

Fig. 5 (case 3).—Appearance on the fifth day of illness. The hilar shadows are increased in density. There is a diffuse mottling in both lungs, with a denser shadow in the middle of the left lung field.

Case 3.—Mrs. K. A., aged 48, first noticed a "head cold" March 12. Her brother had a similar infection at the same time. The patient, her brother (patient 4), her son (patient 5), a friend (patient 6) and her mother (patient 7), among others, were together at a party March 12. Mrs. K. A. felt unduly warm at the time and had chilly sensations the next day, but disregarded them. During the following days the symptoms of a cold persisted, and March 17 they became worse. March 18, fever and coughing began. Chilly sensations recurred, and pain developed in the left side of the chest. The temperature rose to 40 C. (104 F.). The patient was admitted to the hospital on the third day of severe symptoms (fig. 4).

At examination she was restless, apprehensive and overalert. There were slight cyanosis and a hacking, nonproductive cough. The pharynx was slightly inflamed. Marked hyperesthesia was present over both mammary regions. Rales were heard in both interscapular areas and in the bases of both lungs. There was tenderness in the right upper quadrant of the abdomen. The leukocytes numbered 11,800; 81 per cent were polymorphonuclear cells. A blood culture was sterile. Cultures of nasopharyngeal secretions obtained with a throat swab showed Staphylococcus albus and pneumococcus type IV among other forms of bacteria. A roentgenogram revealed an increase in the usual density of the hilus and vascular markings in both lungs. The temperature and pulse rate were high (fig. 4).

The next day more rales were heard in the base of the right lung and the breath sounds had a faintly tubular sound. Nasal washings were made by Dr. Kinney on the fourth day of illness and inoculated intranasally into ferrets. A virus was isolated.

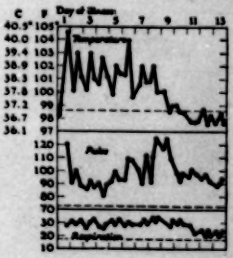

Fig. 6 (case 7).—Clinical course from the first day of illness. Note the low pulse rate.

On the fifth day the patient was severely ill and was stuporous at times. Many rales, egophony, pectoriloquy, weak bronchophony and tubular breathing were now heard in the base of the left lung. There was slight rhythmic flaring of the alae nasi. X-ray examination revealed a diffuse density in the midportion of the left lung (fig. 5) and an increase in the hilar shadows noted two days before which was suggestive of diffuse bilateral pneumonia. During the next few days the patient became considerably worse. On the sixth day, after being urged to raise sputum, she raised the first sample of bloody, tenacious sputum, which contained Streptococcus viridans, Streptococcus hemolyticus, gram-negative cocci and a few type IV pneumococci. Throat washings were obtained at this time by Dr. Magill and inoculated into ferrets. A virus was obtained which was apparently similar to the one obtained by Drs. Stokes and Kinney two days before.

The patient became irrational. Her face was flushed, the mucous membranes were cyanotic and the lining of the mouth, which had felt uncomfortable for several days, was spotted with bright red discrete and confluent macules, some of which contained papules and whitish speckles. Coarse rales were heard in both mammary regions. Pleuritic pain and friction sounds were present in the left axilla. Dyspnea was severe and she appeared to be gravely ill. Oxygen therapy relieved the dyspnea and cyanosis considerably. On the eighth day euphoria and overalertness, with slight mental confusion and disorientation, developed. The skin over the mammary region was hyperesthetic; touching and pinching it caused pain. There was tympany in the left mammary region but no rales were heard. Posteriorly there was dulness in the base of the left lung, with decreased tactile fremitus, loud bronchial breathing, egophony and pectoriloquy. A small area where weak bronchial breathing and rales were heard was found in the right base. The leukocytes numbered 15,800.

Fig. 7 (case 9).—Appearance on the fourth day. There is a large area of density in the left lung. The left dome of the diaphragm is slightly elevated. The rest shadows on the right side are denser than normal.

On the ninth day muscae volitantes and headache were complained of and the patient became more drowsy. She slept most of the time and appeared to be toxic. Various groups of muscles twitched from time to time. The reflexes were generally hyperactive, especially the patellar reflexes. Encephalitis was suspected, but the spinal fluid was normal in all respects and contained two leukocytes per cubic millimeter.

Gradual improvement then began. Herpes appeared on the lip. A roentgenogram on the thirteenth day showed that

1. Stuart-Harris, C. H.; Andrewes, C. H., and Smith, W., with Chalmers, D. K. M.; Cowan, K. G. H., and Hughes, D. L.: A Study of Epidemic Influenza with Special Reference to the 1936-1937 Epidemic, Medical Research Council, Special Report Series, No. 228, London, His Majesty's Stationery Office, 1938.

2. Drs. Stokes, Kinney, Francis and Magill performed most of the animal and serologic tests.

the lungs had become relatively clear except for haziness at the base of the left one suggestive of pleural thickening. The number of leukocytes dropped to 9,000.

Improvement was rapid after the sixteenth day, and the patient left the hospital on the twenty-fifth day for further convalescence. She had lost about 7 Kg. (15 pounds) in weight. Rales and friction sounds were still present in the base of the left lung. She was reexamined on the forty-third day. Her temperature was 37.3 C. (99.2 F.) and she felt weak. A roentgenogram showed thickening of the interlobar pleura between the upper and lower lobes of the left lung but no other abnormalities.

Fig. 8 (case 9).—Appearance on the tenth day. The patch of density in the left lung shown in figure 8 has disappeared, but there is now a diffuse mottling of both lung fields. Plates made on the twenty-third and forty-third days showed progressive diminution of the abnormal densities until the seventieth day, when the lung fields appeared normal.

Summary.—The illness apparently began as a mild infection of the upper part of the respiratory tract, which was followed after several days by severe tracheobronchitis and diffuse pneumonia. In spite of the pulmonary involvement and hacking cough there was practically no sputum. Dyspnea, cyanosis, photophobia, stupor, nervous symptoms and pleuritic pain were conspicuous characteristics. Sweating was not prominent. Rales and roentgenographic evidence of pleural involvement were still present two weeks after the temperature became normal. The type IV pneumococci recovered from the sputum were regarded as commensals without significance.

Nasopharyngeal washings from which an apparent virus was recovered were obtained on the fourth day by Dr. Stokes and on the sixth day by Dr. Francis. Blood serum for tests was

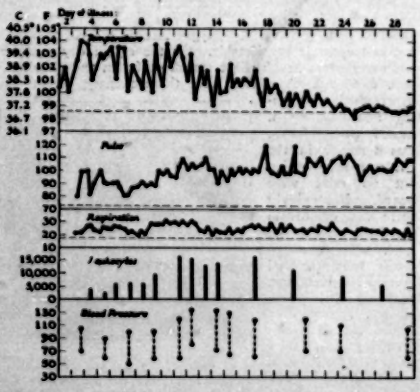

Fig. 9 (case 9).—Clinical course from the second day of illness. Note the low pulse rate and the low leukocyte counts early in the illness. The blood pressure rose during the course.

obtained on the same days, on the forty-third and on the one hundred and twentieth day but contained no antibodies for the virus of epidemic influenza.

Patients 4, 5, 6 and 7, as mentioned, had been in contact with patient 3 when they attended a gathering March 12 at which several members of her family and a few friends were present. Mrs. A. (patient 3) and her brother did not feel well at the time. Within the next week Mrs. A.'s son, a friend and her mother became ill.

Case 4.—Mr. B. (brother), aged 45, became ill about March 12, feeling cold, shivery and "grippy." He kept on working except for one day in spite of his illness, which lasted about two weeks. There was an annoying dry cough but no sputum. He was examined twice about the ninth day of illness by Dr. Burgess Gordon, who noted rales in both interscapular regions on both occasions. The temperature, taken on two occasions, was normal.

Case 5.—J. A. (son), aged 25, noted dryness of the throat March 14. Two days later the throat was very sore. Rhinitis, malaise and muscle pains were present. It hurt to bend the neck forward. The patient did not go to bed. There was no fever or cough. These symptoms lasted three days and gradually disappeared, so that by the eighth day only soreness of the muscles of the neck was noted.

Case 6.—Dr. C., aged 57, a friend, had rhinitis and sneezing March 16. He felt hot but did not take his temperature. He continued to work but the next day did not feel well. There were epigastric pain, cough with a small amount of sputum, slight diarrhea and pain. When the temperature rose to 38.3 C. (101 F.) he went to bed. There were headache, anorexia, a disinclination to move and muscle pains "as in influenza." The patient recovered after four days.

Fig. 10 (case 11).—Appearance on the twenty-first day of illness. There are disseminated nodular areas of density in both lung fields. The shadows in the bases, especially in the right, suggest consolidation.

The symptoms of patients 4, 5 and 6 would generally be regarded as those of a cold and agree with the criteria laid down by Stuart-Harris and his associates[1] for what they call the febrile catarrhs as differentiated from influenza. It would be highly valuable to know whether a single virus caused this "house" epidemic of disease of the respiratory tract, in which patients 3 and 7 had a severe form, and the others had a mild form. The fact that mice inoculated with nasopharyngeal washings from patient 3 and with blood serum from patient 7 seemed to be made ill by a similar filtrable infectious agent lends support to the hypothesis.

Attempts to solve the problem by immunologic methods are under way.

Case 7.—Mrs. B. (mother), aged 76, noted dryness of the throat and cough about March 16. I saw her March 19, at which time her face was flushed and she appeared to be ill although her temperature was 36.1 C. (97 F.). In the afternoon she became much worse. There was no chill, but the temperature rose to 40.3 C. (104.5 F.) and she was put to bed. She was somnolent and confused, failed to cooperate and was incontinent of feces and urine. She remained at home and was attended by Dr. Burgess Gordon. He found evidence of extensive bronchitis and rales in the base of both lungs. During the next few days high fever persisted, the pulse rate was low and the respiratory rate was 30 per minute, as shown in figure 6. The patient perspired profusely, was cyanotic and coughed but raised no sputum. Pharyngeal exudate was obtained by a swab and inoculated into a mouse. Type IV pneumococci were present. There was constipation, and about the sixth day tympanites, present from the beginning, became severe, tachycardia developed, and the patient appeared to be

moribund. She was comatose up to the eight day and confused mentally for a week thereafter. After the eighth day the temperature declined and recovery ensued.

Nasopharyngeal washings were obtained on the fourth and sixth days by Drs. Kinney and Stokes and Magill and Francis, but no virus was obtained. However, blood serum inoculated intracerebrally into white mice by Dr. Francis caused the mice to become ill after twelve or eighteen days. An occasional animal died. The virus apparently died out after the fourth passage.

Patients 8, 9, 10 and 11 were seen in May, June and August and had had no contact with the patients previously described or with any one else with a similar disease. Patient 8 was regarded as having influenza, and in case 9 suspicion of typhoid or psittacosis led to a delay in obtaining nasopharyngeal washings to be examined for a virus until the eighth day.

CASE 8.—Dr. H. C., aged 27, a patient of Dr. George Major of Reading, Pa., had a feeling of malaise, dryness of the throat which developed into a sore throat, hoarseness and cough in the afternoon of May 17. At 9 p. m. a chill occurred, and the temperature then rose to 40 C. (104 F.). The patient had to go to bed, but the next morning there was a remission of symptoms and he resumed his work. He felt fairly well until evening, when fever and malaise returned. For the next few days there were great prostration and weakness and the temperature hovered about 40 C. (104 F.), the pulse rate between 100 and 110, the respiratory rate between 20 and 40 and the leukocyte count between 7,000 and 12,000. The patient was extremely ill, perspired profusely and was greatly distressed by a continuous hacking, unproductive cough. There were photophobia, conjunctival injection and lacrimation. Small amounts of sputum were raised, and numerous cultures of it revealed staphylococci, Friedländer's bacilli and hemolytic streptococci but no type specific pneumococci. A blood culture was sterile.

I saw the patient on the seventeenth day of illness, at which time there was diffuse pneumonia and restlessness, apprehension, headache, sweating, nasal obstruction, cyanosis, severe dyspnea and cough, which were prominent features. Nasopharyngeal washings were made at this time and sent to Dr. Francis, who inoculated them into ferrets but failed to recover any virus. The blood serum contained no antibodies for the influenza virus.

During the second and third weeks of the illness the temperature declined, but the pulse rate rose to 120 and 130, the respiratory rate to 50 and the leukocyte count to 12,000 and 16,000. The temperature rose again to 38.9 C. (102 F.) on the twenty-second day and followed an irregular course, gradually becoming lower; it remained normal after the forty-first day.

CASE 9.—Miss H. A., aged 38, noted discomfort in the abdomen after a dietary indiscretion June 10. There was no diarrhea or constipation, and the discomfort disappeared after a few days. June 18 she had chilly sensations, and pain developed in both eyes. She was very sleepy June 19 and the ocular pain persisted. June 20 she was awakened by cough, chilliness, pain and soreness under the sternum. The temperature varied between 37.8 C. (100 F.) and 39.4 C. (103 F.). Chilliness recurred several times in the next day or two and was accompanied by sweating, which was perhaps caused partly by the taking of acetylsalicylic acid. Cough was frequent, but no sputum was raised. The patient was admitted to the hospital on the third day of illness.

The voice was slightly hoarse, and the mucous membranes of the eyes, nose and pharynx were reddened. The tongue was heavily coated. No abnormal sounds were heard in the lungs. There was slight abdominal distention. A tender lymph node the size of a hazelnut was palpable under the ramus of the mandible on the right side.

Because of the high fever, relatively slow pulse and leukopenia (4,800 cells), the patient was isolated as presumptively having typhoid.

The chief complaints in the first few days were pain in the eyeballs, photophobia, intense frontal headache and cough. There were hoarseness, congestion of the conjunctival and oral mucous membranes and duskiness of the face. Paroxysms of cough occurred frequently but were not productive. The patient was drowsy at times almost to the point of stupor, apart from the occasional narcosis from codeine given for headache.

No abnormal sounds were heard in the chest until the fourth day, when Dr. Tocantins detected harsh breathing and a few rales in the left infraclavicular region and a few rales in the left scapular region. A roentgenogram made at the bedside revealed a patch of increased density in the periphery of the left lung between the second and fourth ribs, and the left side of the diaphragm was somewhat high, as shown in figure 7. By request a small fleck of sputum was raised; it was raised with difficulty and contained a few indifferent streptococci, Micrococcus catarrhalis and diphtheroids.

When I examined the patient on the seventh day the only abnormal sign I could detect in the chest was diminished breathing in the left scapular area. The patient now had no complaints except headache, photophobia and cough, but she appeared to be gravely ill. On the eighth day a profuse drenching sweat occurred. Rales returned in the left lung, and the inspiratory breath sounds became harsh and sibilant. Sonorous and rasping sounds were heard. Dyspnea was present and cyanosis appeared. A roentgenogram showed that the localized density in the left lung had almost disappeared, but the whole left lung now seemed faintly clouded. The early density may have been caused by atelectasis. By this time it was obvious that the patient did not have typhoid, and the pharyngeal secretions were collected by Dr. Stokes and inoculated into ferrets. A small amount of white creamy sputum raised with difficulty was inoculated intraperitoneally into mice to determine whether the psittacosis virus was present and into guinea pigs to test it for tubercle bacilli. The leukocyte count remained low. On the seventh and eighth days the patient was given a total of 8 Gm. (120 grains) of sulfanilamide. There was no evidence of any effect.

During the next few days the cough was distressing and stupor was present but the patient was lucid on questioning. She lay on her right side to lessen the cough. Cyanosis deepened, and dyspnea was at times distressing. Vomiting occurred several times, there were periods of drenching perspiration, and headache and photophobia persisted. The spleen and liver were not felt. Abdominal distention and constipation were present.

Many rales, suppressed breath sounds and dulness were present in the lower part of the left lung and tympany above; suppressed breath sounds and wheezing were heard in the right side. A roentgenogram made on the tenth day showed a diffused mottling composed of nodular densities in both lung fields (fig. 8).

No unusual events occurred in the following few days except an occasional drenching sweat. Dyspnea and cyanosis persisted and were worse after coughing attacks. No sputum was raised. Oxygen greatly relieved the dyspnea. The temperature, pulse rate, respiratory rate, number of leukocytes and blood pressure during the illness are shown in figure 9. The pulse rate, low in the beginning, rose. The respiratory rate was never rapid. The blood pressure decreased temporarily and then increased. On the seventeenth day friction was palpable and audible in the lower anterior part of the right axillary area, where the patient complained of pain. Evidence of pleuritis disappeared after a few days. Flaring of the alae nasi was noted. In an attempt to get another sample of sputum Dr. Clerf made a laryngoscopic examination. The mucous membranes were found to be markedly congested and covered in places with a thick, white, tenacious exudate. Some of the exudate was obtained, cultured and inoculated into mice. The animals recovered. The leukocyte count rose to 17,000.

The patient improved gradually and the symptoms slowly disappeared, but tachycardia persisted and the tongue was heavily coated. A roentgenogram showed gradual clearing of the density in the lungs. Numerous rales and wheezes persisted. On the twenty-third day another profuse sweat

occurred. By the thirtieth day improvement was evident. Many coarse rales were still present in the base of the left lung, but the base of the right lung was almost clear. Tachycardia was present. Bronchoscopic examination by Dr. Clerf revealed inflammation of the whole tracheobronchial tree; it was especially prominent in the lower branch of the left bronchus, which contained thick white exudate. The exudate was again injected into mice. There was a weight loss of 11 Kg. (24 pounds).

When the patient was discharged, forty-three days after the onset of illness, the temperature was normal but the pulse rate hovered between 90 and 110. There were many coarse rales in the lower lobe of the left lung. A roentgenogram showed intensification of the bronchovascular markings, although this was less than before. Density was present in the bases of the lungs, especially in the base of the right lung.

Laboratory Data.—Slight secondary anemia was present. Many stippled erythrocytes were present in the early period. Each examination showed a persistent increase in the proportion of polymorphonuclear cells, the percentage being between 80 and 90. Döhle's bodies were present in the neutrophils. Febrile albuminuria was present. Four blood cultures were sterile. No typhoid bacilli were present in the stool. Agglutinins for B. typhosus, Brucella abortus and Pasteurella tularensis were absent. The sputum was examined and cultured seven times. The usual flora of the nasopharynx were present, streptococci predominating. No tubercle bacilli were found by culture or inoculation of guinea pigs. Psittacosis did not develop in any of the mice inoculated with sputum. The blood serum contained no antibodies against the influenza virus.

Summary.—Typhoid with bronchitis was strongly suspected until evidence of pneumonia developed on the fourth day. Psittacosis, tularemic pneumonia and miliary tuberculosis were then suspected until ruled out. A roentgenogram revealed a shadow in the left lung which disappeared a few days later, to be replaced by diffuse shadows in both lungs. Dyspnea, cyanosis, drowsiness, hoarseness, dry cough, abdominal distention, headache, photophobia and pleurisy were prominent symptoms and signs. Visual evidence of laryngitis, tracheitis and bronchitis was obtained. There was a hacking cough, and practically no sputum was raised. Pharyngeal washings were obtained on the eighth day of the disease, but no virus was recovered.

Case 10.—Mrs. T. P., aged 35, a patient of Dr. M. J. Sokoloff, felt tired July 11 and had a shaking chill the next day. Because of fever and malaise she was kept in bed for three days. She improved but on July 15 became worse. There were slight sore throat, conjunctival injection, headache and photophobia. Cough began July 19. It was paroxysmal, dry and racking. Profuse sweats occurred, especially at night. The patient was admitted to the hospital July 21, the tenth day of illness. The temperature was 39.5 C. (103 F.), the pulse rate varied from 100 to 120 and the respiratory rate was about 30 per minute. The tonsils and pharynx were inflamed. There were frequent paroxysms of cough and dyspnea, but no sputum was raised. Cyanosis was present. Signs of atypical pneumonia were present in both lungs. A roentgenogram showed diffuse mottling in both lungs, most dense at the bases. The leukocytes numbered 9,000. Cultures of material obtained from the pharynx showed a mixture of bacteria, chiefly Streptococcus viridans, Micrococcus catarrhalis and gram-negative bacilli. There were no pneumococci. A blood culture was sterile.

The temperature was irregular and gradually declined until the twenty-second day. Cough, cyanosis and sweating persisted, and the patient was gravely ill. Subsequent leukocyte counts varied between 6,000 and 10,000. The temperature rose again on the twenty-third day and followed an irregular course, averaging 37.8 C. (100.4 F.). Dyspnea, cough, sweating and headache were distressing. On the forty-second day the patient became irrational and complained of severe headache, pain and stiffness of the neck. There was occasional vomiting. I saw her at this time. There were photophobia, inflammation of the pharynx and signs of bilateral pneumonia. The reflexes were variable; Kernig's sign, Babinski's sign and ankle clonus could be elicited at times. Encephalitis was suspected, and the spinal fluid was examined. It was under 220 mm. of water pressure and contained 270 cells per cubic millimeter and 74 mg. of protein per hundred cubic centimeters. A portion of it was sent refrigerated to Dr. Francis for inoculation tests. The patient was somewhat relieved after the removal of 10 cc. of spinal fluid, and two days later 10 cc. more was removed. This contained 350 cells per cubic millimeter, 78 per cent of which were polymorphonuclear cells. Neither sample contained bacteria. A portion of the second sample was injected intracerebrally into eight mice and into the footpads of three guinea pigs. No virus was isolated. The spinal fluid when examined again a week later contained 290 cells, 91 per cent of which were polymorphonuclears. The patient's condition was grave, and her state varied between coma and lucidity. The reflexes were variable, the pupils reacted sluggishly to light and slight rigidity of the neck persisted. The temperature rose to 40 C. (104 F.), the pulse rate diminished to 70 or 80 and the respiratory rate was 30 per minute. The patient was incontinent of urine and feces. During the next few days she became worse; strabismus, pupillary dilatation and insomnia were present. The ocular fundi were normal. Death occurred on the fifty-fifth day. Permission for postmortem examination was not obtained, but a roentgenogram showed a diffuse haziness and fine mottling of both lungs.

The clinical record of the pulmonary infection in this case closely resembles that in the other cases reported, but, as in one of Scadding's cases, death occurred from meningo-encephalitis. Thus the same problem is raised as pertains to the relation of influenza and the encephalitis which occasionally follows it; namely, are the pulmonary and nervous symptoms caused by one agent or by different agents? No virus was recovered from the nasopharyngeal washings or from the spinal fluid.

The following case was studied at the University of Minnesota hospital in 1934, but the report is included here because of its similarity to the cases of 1938:

Case 11.—A man aged 36 was chilled Oct. 29, 1934. Next day he noted chilly sensations, fever and sweating. On the third day he had a severe chill, sore throat and profuse perspiration, and he went to bed for a day or two. He then returned to work but soon felt chilly and again sought his bed, with a relapse of high fever and generalized aching. He tried to get up but could not because of dyspnea on exertion and severe sharp pain in the left side of the chest. He entered the hospital on the ninth day complaining of difficulty in breathing, sore throat, fever and severe pleuritic pain in the right side. He was slightly cyanotic and had labored breathing and a reddened pharynx. There was slight dulness and a few rales in the lower lobe of the left lung, dulness and bronchial breathing in the base of the right lung and friction sounds in the right axilla. Leukocyte counts varied from 4,000 to 8,000. As the disease progressed there were recurrent attacks of drenching sweats, but there was little or no cough. A few specimens of sputum and material obtained with a swab usually contained bacteria which were predominantly staphylococci. Material aspirated with a needle from the consolidated area of the lung was sterile. The temperature was high, 39.5 C. (103 F.) until the eleventh day, after which it averaged about 38.3 C. (101 F.). It became normal on the twenty-seventh day. The pulse rate varied between 85 and 120 but usually was about 100 per minute. The respiratory rate reached 30 per minute on the twelfth day but was about 22 thereafter in spite of the dyspnea and cyanosis. Blood cultures were sterile. Other serologic tests for typhoid fever, undulant fever and tularemia were negative. A roentgenogram of the patient's chest is shown in figure 10. The tuberculin test was negative during the illness and after recovery. Early in the course of the illness influenza, atypical pneumonia, pulmonary mycotic disease and miliary tuberculosis were suspected. Later in the course, one physician suggested typhoid with bronchitis. The roentgenologist (Dr. L. G. Rigler) made a diagnosis of capillary pneumonia.

The course of the disease was characterized by cyanosis, dyspnea, pain and a sensation of pressure in the chest, especially on exertion, although tachypnea was not prominent. The patient complained of weakness and perspired profusely until the nineteenth day, after which he improved. In a roentgenogram made five months later the shadows shown in figure 10 were present but diminished in density.

In this case there was evidence of early involvement of the upper part of the respiratory tract, soon followed by diffuse patchy bilateral pneumonia with disseminated areas of density and evidences of consolidation in the bases. Severe pleural pain persisted for nearly two weeks. Dyspnea, cyanosis and profuse sweating, but practically no cough or sputum, were prominent features. The leukocytes were not increased in number, and roentgenograms showed slowly resolving bilateral diffuse pneumonia.

SUMMARY

The strikingly similar clinical features of the cases reported suggest that the condition belongs to a disease group not conforming to influenza or the usual form of the common cold but included in an undifferentiated group of infections of the respiratory tract, often called tracheobronchitis, capillary bronchiolitis or bronchopneumonia.

Pulmonary Symptoms.—After several days of mild symptoms of hoarseness and sore throat, the temperature rose in each case, reached high levels, persisted with remissions for the duration of the illness and declined by lysis. In the early period in seven cases the pulse rate was slow in proportion to the fever. The temporary remission of symptoms after the first day or two of illness in cases 1, 3, 6, 8, 9 and 10 suggests that the fever may have been biphasic, a characteristic of many diseases caused by filtrable viruses, but accurate data of the first few days is lacking. The fever curves in cases 2, 7 and 9, observed from the first and second days, were not biphasic. Infection seemed to spread rapidly in some cases and more slowly in others until the trachea, bronchi and eventually the lungs were involved in a diffuse, bilateral process which persisted several weeks and was followed by a residuum which lasted several months. There was involvement of much of the smaller bronchiolar system, as manifested by dyspnea and cyanosis in each case, but evidence of consolidation was never striking. Tachypnea was not prominent. In five cases cough was distressing; it was hacking, paroxysmal or continual, but in no case was more than a slight amount of sputum raised. The respiratory rate was increased somewhat in each case but not to the degree expected from the extent of the pneumonic lesion. Cyanosis and dyspnea were noted in all cases. In cases 2 and 11 cough was minimal in spite of widespread pulmonary invasion. The fact that abnormal signs and roentgenographic shadows persisted so long in some cases suggests that the interstitial tissue was severely injured. Severe pleuritis and friction sounds were present in four of the eight cases of serious involvement, and sterile effusion took place in one.

Nervous and Other Symptoms.—Next to the symptoms of tracheobronchitis and pneumonia, sweating and drowsiness were most prominent. Sweating was profuse in six of the cases but not striking in case 3. Headache was present in all, but muscle pains were minimal. Photophobia was distressing in five cases. In cases 3 and 10 nervous symptoms were more severe, with stiffness of the neck, photophobia, intense headache, twitching, somnolence and disturbed reflexes suggestive of meningo-encephalitis, and in case 10 the spinal fluid contained several hundred cells per cubic millimeter.

The only symptoms referable to the gastrointestinal tract were constipation, abdominal distention and a heavily coated tongue, which were present in five cases. Loss of weight was conspicuous in four cases. Early in the course of the disease in several cases constitutional symptoms predominated over those arising from the respiratory tract, as in cases 1, 2 and 9, but later the pneumonia attracted most attention.

The fever lasted from ten to forty-three days in the cases of severe involvement but usually about three weeks. Rales and roentgenographic evidence of pulmonary infiltration persisted in some cases for weeks or months afterward.

The routine laboratory data were not unusual. The urine usually gave evidence of transient febrile nephrosis. Slight secondary anemia developed. The initial leukocyte count was about normal, but initial leukopenia was present in two cases. The count usually increased during the course of the fever. The number of polymorphonuclear cells was usually increased relatively and absolutely. Blood cultures never contained bacteria, and agglutinins for other bacillary diseases were absent.

THE VIRUS

The failure to isolate a virus in most cases, if one was present, was probably due to the delay before attempts were made or to the weak pathogenicity of the virus for the species of animals which were inoculated. According to British investigators,[1] the probability of obtaining the virus of influenza diminishes rapidly after the third day. These investigators also suggest that when the virus attacks the lungs there is less of it in the upper regions of the respiratory tract.[2] With only two patients of the present series, who had been in close contact, were attempts to obtain a virus made as early as the fourth day of illness. From both patients Dr. Stokes and Dr. Francis obtained an unusual virus, from the nasopharyngeal washings of one and from the blood of the other. It was weakly virulent for mice and caused pneumonia and encephalitis about two weeks after inoculation. It is of interest that a somewhat similar virus was apparently obtained from a series of patients by Francis and Magill.[4] The virus caused meningitis and pneumonitis when inoculated in animals.

Experiments are now under way to determine whether the virus obtained from my patients was (*a*) actually the cause of the disease, (*b*) the cause of encephalitis accompanying an infection of the respiratory tract, (*c*) a commensal unrelated to the disease or (*d*) a virus accidentally encountered in the animals used in the tests. The last possibility is unlikely, since a similar virus was recovered from the same patients by two investigators working in different cities with different lots of animals. The experimental studies will be reported in detail in a later paper.

DIAGNOSIS

As mentioned, in three of the cases in which the signs of pneumonia were delayed, typhoid with tracheobronchitis was suspected because of the suggestive symptoms, signs and laboratory data. Pulmonary

3. Stuart-Harris and his associates,[1] page 104.
4. Francis, Thomas, and Magill, T. P.: An Unidentified Virus Producing Meningitis and Pneumonitis in Experimental Animals, J. Exper. Med. 68: 147-160 (Aug.) 1938.

tuberculosis and tularemic pneumonia were suggested in cases 9 and 11, and miliary tuberculosis was suggested in case 10. The clinical descriptions of cases 1, 8, 9 and 11, except for the absence of proof of a biphasic temperature curve, fit well with the clinical description of psittacosis, yet no biologic tests or evidence of contact infection supported this diagnosis. It was more difficult to separate the clinical features from those of influenza or influenzal pneumonia, which several other physicians believed some of the patients to have, yet it was proved that the virus of influenza was not present. Some of the clinical features were more like those of the "febrile catarrhs" described by British observers[1] than those of influenza, and the task now is to determine whether the disease is one member of the undifferentiated group of febrile catarrhs. It seems likely that the disease as discussed here, particularly in the age group dealt with, represents (*a*) the severe uncomplicated form of an otherwise mild and commonly encountered infection, (*b*) the visitation of a special form of virus infection in 1938 or (*c*) several different infections with clinical characteristics in common.

From London in 1937, Scadding[5] reported under the term disseminated focal pneumonia four cases of an unusual pulmonary infection, two of which were strikingly similar to my cases. They were characterized by a gradual onset, malaise, shivering, dyspnea, dry cough, marked sweating, slight leukocytosis and roentgenographic shadows of diffuse pneumonia. The disease lasted three or four weeks, and all patients but one recovered. The patient who died had bulbar encephalitis, which might be significant, considering that there was evidence of encephalitis in two of my patients and that the virus which was recovered from one was pneumonotropic and neurotropic in animals. In Scadding's patient the pulmonary lesion consisted of interstitial inflammation, slight fibrosis of the alveolar walls and edema and hemorrhage in the alveoli, changes which commonly occur with pneumonias caused by filtrable viruses.[6]

That it is permissible to group similar diseases together as probable entities on a clinical basis as I have done here has been shown many times in the past. Most of the infectious diseases were delineated long before their causative agents were discovered. The general behavior of the disease in my cases strongly suggests that the infection was caused by a filtrable virus and was not bacterial in origin, as discussed elsewhere.[7] Its similarities to the virus diseases influenza, colds and psittacosis have been mentioned. If the infection described here can eventually be proved to be an etiologic entity, the matter of naming it will arise. To avoid a name too restrictive or too indefinite it would seem best at present to call it a type of infection of the respiratory tract, perhaps type A, or type A virus pneumonia if it can be proved that the virus was the cause.

CONCLUSION

In a series of eight cases of an unusual, uniform, severe infection of the respiratory tract the disease was not caused by the virus of epidemic influenza or psittacosis, nor was it like other commonly described diseases. I was therefore led to regard it as a separate disease entity pending the outcome of further experimental studies. The infection occurred in adults and began as a mild infection of the respiratory tract; this was followed by severe, diffuse, atypical pneumonia and in two cases by the symptoms of encephalitis. Dyspnea, cyanosis, hoarseness, cough without sputum, drowsiness and profuse sweating were the chief characteristics. The disease lasted several weeks. A filtrable infectious agent recovered from the nasopharynx of one patient and from the blood of another may have been etiologically related to the infection, but the evidence is incomplete. Experiments to clarify this point are under way.

5. Scadding, J. G.: Disseminated Focal Pneumonia, Brit. M. J. 2: 956-959 (Nov. 13) 1937.
6. Reimann, H. A.: The Pneumonias, Philadelphia, W. B. Saunders Company, 1938, chapter 13.
7. Reimann: The Pneumonias, p. 256.

Clinical Notes, Suggestions and New Instruments

ACUTE YELLOW ATROPHY OF THE LIVER FOLLOWING SULFANILAMIDE MEDICATION

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As far as I know, there has been no report of a fatal case of sulfanilamide poisoning in which massive destruction of the liver cells has caused death. The report of such a case, with autopsy, therefore seems to be justified.

REPORT OF CASE

History.—R. B., a youth aged 18, a university student, seen in the clinic of the Student Health Service Jan. 22, 1938, complained of moderate nausea, vomiting and diarrhea of three days' duration. At the time of his admission he was moderately jaundiced but not cyanosed. He was admitted to the hospital with a diagnosis of acute catarrhal jaundice. After a more complete study in the hospital, the diagnosis was not changed. At this time it was learned that he had been under treatment for gonorrheal urethritis for a little more than two months and that he had been receiving sulfanilamide under the careful supervision of his physician.

His physician later supplied the prescriptions, which called for 80 grains (5.2 Gm.) the first day, 60 grains (4 Gm.) the second, 40 grains (2.6 Gm.) the third, and 20 grains (1.3 Gm.) a day thereafter until 700 grains (140 5 grain tablets, or 45 Gm.) had been taken. A period of rest from sulfanilamide therapy, lasting about two weeks, was then ordered. After this interval, a second series was started but was discontinued after three days because of gastrointestinal symptoms. From statements the patient made it was learned that he had taken sulfanilamide in excess of the prescribed dosage because huge doses controlled the urethral discharge. There was also evidence that he had taken the drug during the prescribed rest period. Unfortunately, more specific information was not obtained before the patient became irrational.

The hospital course was uneventful and afebrile, and the symptoms steadily improved. January 24 he was permitted to leave the hospital to take a final examination, but he returned January 25 with an accentuation of all his initial symptoms.

His initial treatment consisted of a fat-free diet and intravenous administrations of dextrose in saline solution. On the first day he slept almost constantly and had to be awakened for food or medication. About thirty hours after his second admission he became very restless, incoherent, irrational and disoriented. Three hundred cc. of 15 per cent dextrose solution intravenously markedly improved these symptoms. However, on the following day he again became irrational, disoriented and at times violent and noisy. At this time it was noted that the percussion boundaries of the liver were abnormally narrow. A diagnosis of acute yellow atrophy of the liver was made. Intravenous administration of dextrose solution caused little improvement this time. Vomiting became frequent and violent, and the vomitus was bile stained. On the night of the third hospital day he became extremely noisy and violent and had to be restrained. Morphine one-fourth grain (0.016 Gm.) and

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scopolamine 1/150 grain (0.0004 Gm.) were given with only temporary relief; he soon relapsed into the violent stage.

During the next day he remained very restless and at times noisy and violent, needing constant restraint and large doses of sedatives (phenobarbital sodium and sodium bromide). He showed no recognition of his parents. He vomited almost everything he took by mouth, and he was incontinent of urine and feces.

January 29, the fourth hospital day, at 8 a. m., pulmonary edema developed. Four hundred cc. of blood was removed by venesection and he was placed in an oxygen tent. His condition became steadily worse, and he died at 1:55 p. m. His death was respiratory in nature, the heart beats being audible for some time after the cessation of respiration.

The temperature, which had been normal during the first hospital stay, remained so for the first two days of this stay and then rose rapidly and fluctuated between 101.4 and 104.6 F. until death.

Laboratory Data.—The Kahn reaction of the blood was negative. The total white blood count on admission was 7,296 with 89 per cent polymorphonuclear neutrophils; on the day before death it was 14,176 with 82 per cent neutrophils. The day before death nonprotein nitrogen of the blood was 33 mg. per hundred cubic centimeters. The icteric index was 133 on admission and 166 the day before death. The urine was essentially normal on admission but showed many casts on the day of death.

Autopsy.—This was performed by Dr. M. Pinson Neal approximately three hours after death. In addition to the generalized jaundiced condition of the skin and all the organs, the significant pathologic changes were in the brain, the lungs, the kidneys, the spleen and especially the liver.

The dura mater of the brain was bile stained and excessively wet. The convolutions were rather flat and the sulci filled with fluid. The blood vessels of the meninges were markedly engorged. Otherwise there were no abnormal gross or microscopic manifestations in the brain.

The lungs were wet and boggy; microscopically they showed compensatory emphysema, patchy bronchopneumonia with areas of gray hepatization and others of red hepatization, and rupture of the bronchiolar walls and peribronchiolar hemorrhage.

The spleen weighed 400 Gm. and microscopically showed hyperplastic splenitis.

The kidneys showed nephrosis of undetermined etiology.

The liver weighed 1,200 Gm. and grossly did not appear especially abnormal except for the bile staining. Microscopically it showed a massive breaking up of the liver lobules and liver cords, with separation of the remaining fragments into indiscriminate cell groups. There were areas involving two or more lobules in which not a single liver cell would be recognized as such. The liver cells that could be recognized almost uniformly showed fatty changes, with the cytoplasm containing droplets and globules of fat. Bile pigment was scanty. In some areas the only structures recognized as liver tissue were the bile capillaries. There was very little evidence of inflammatory reaction. The entire picture was one commonly seen in acute yellow atrophy.

COMMENT

There was no history or other indication that any drug or possibly toxic substance other than sulfanilamide had been taken by the patient. The initial diagnosis was acute catarrhal jaundice, and this diagnosis was not changed until severe toxic symptoms made their appearance.

As nearly as could be determined, no sulfanilamide was taken after the onset of the symptoms which led to his admission to the hospital. If this is correct, the fatal damage to the liver must have been accomplished by the time the symptoms began. University students, as a group, are surprisingly familiar with sulfanilamide, and unfortunately many regard it as a panacea for any infection. This case seems to give substantiation (if this is needed) to the idea that self medication with this drug is very dangerous, for here liver damage was apparently irreparable by the time any symptoms were recognizable.

University Hospital.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE AND REPORTS.

HOWARD A. CARTER, Secretary.

THE PHYSIOLOGIC EFFECTS OF ULTRAVIOLET RADIATION

HENRY LAURENS, PH.D., LL.D.

NEW ORLEANS

The physiologic effects of ultraviolet radiation, in contrast to pathology and therapy, are difficult to grasp and to reduce to brief fundamentals.

SKIN

Many important effects on the body are mediated by the skin and by changes produced in it. The antirachitic effect occurs in the lowermost cells of the horny layer and in the prickle cells of the malpighian layer, while the production of erythema takes place in the basal cells (germinativum) of the malpighian layer and in the corium. The horny, clear and granular layers act as filters. Ergosterol and cholesterol can be activated by ultraviolet rays which pass through the epidermal layer of the skin. Blood in the superficial capillaries absorbs only a small percentage of energy incident on the skin.[1]

The "burn" produced by ultraviolet takes a few hours to appear and the longest wavelength that can produce it is about 3,150 angstroms.[2] The curve representing relative effectiveness of different wavelengths rises to a maximum at 2,967 angstroms, descends to a minimum at 2,800 angstroms, then rises again to a smaller maximum near 2,500-2,450 angstroms and extends to an undetermined shorter wavelength. Blonds are from 40 to 170 per cent more sensitive than brunets, men 20 per cent more sensitive than women. Persons between 20 and 50 are more sensitive than those younger or older. There is an average maximum sensitivity in March-April and in October-November. A person with an unstable nervous system, an overactive thyroid gland, elevated blood pressure or active tuberculosis shows increased sensitivity. The sensitivity increases at the menses—a maximum being reached on the first day of the cycle—and then declines to normal. After the second month of pregnancy the sensitivity markedly increases until the seventh, after which it diminishes somewhat, being still high at term. Increased sensitivity is correlated with thyroid hyperactivity and with increased number of open capillaries in the skin. An acid diet increases sensitivity. Salves exert a protective action, an acid salve less than an alkaline.[3]

The erythemal reaction is used as a practical means of evaluating or appraising the ultraviolet output of lamps. So far as known there is no other biologic, physical or chemical reaction which has a similar effectiveness. It is scientifically meaningless and misleading to evaluate therapeutic effectiveness in terms of erythemal response unless therapeutic effectiveness very

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1. Laurens, Henry: Physiological Effects of Radiant Energy, New York, Chemical Catalog Company, Inc., 1933. Photochemistry in Medicine: A General Outline, in Cold Spring Harbor Symposia on Quantitative Biology, Cold Spring Harbor, L. I., N. Y., the Biological Laboratory, 1935, vol. 3, p. 277. Sunlight and Health, Scient. Monthly 42: 312 (April) 1936.

2. An angstrom unit of wavelength is one ten-millionth millimeter.

3. Ellinger, F.: Biologische Grundlagen der Strahlenbehandlung, p. 153.

closely follows it, and there is no apparent reason for assuming such a relationship. This can have no meaning unless the sole benefit of radiation therapy arises in some way from the apparent injury as shown by erythema.[4] About nine years ago a request came to the Council for a simple means for determining whether a lamp emits ultraviolet. The Council recommended the erythema test, but it has repeatedly and very specifically stated that the erythema test is not a measure of therapeutic effectiveness. Nevertheless, the use of the erythemal reaction is of practical usefulness, since its determination serves to prevent severe burns and to safeguard against the fraudulent sale of lamps deficient in ultraviolet radiation.

Erythema shows the reactions of the "triple response" [5] and depends on the setting free of H-substance.[6] The acidity of the gastric juice increases simultaneously with its beginning.

Care should be used to avoid overexposure. Not only may a painful sunburn result but more deep-seated injury may occur, as indicated by nervousness, apprehensiveness and insomnia. Long continued exposure produces, in some individuals, various cutaneous conditions.

Erythema is followed by pigmentation. Ectodermal pigment is almost exclusively in the basal cells, occurring in the white race in the outer layers only when the skin is well tanned. In Negroes pigment is more abundant in the basal layer but there is also much pigment in the outer, including the horny, layers. The process of adaptation or protection consists in proliferation, cornification, pigmentation and changes in skin cell proteins. The shorter waves are absorbed by the horny layer (about 30 microns thick) and never reach the living cells of the epidermis. The longer waves which penetrate as far as the dermis (50-80 microns) may act on the blood in the papillae. The basal layer pigment, which increases after irradiation with wavelengths shorter than 3,150 angstroms, diminishes the amount of ultraviolet which may reach and penetrate the basal cells and thus protects the dermis from receiving too much energy. The function of skin melanin as a screen against ultraviolet is small in the white race, of more importance in the Negro and is the principal reason for his low sensitivity.[7]

Pigment formation and therapeutic benefit are independent, coordinate phenomena proceeding simultaneously in the same direction. Pigment formation is dependent on individual factors, race, coloring, constitution and body function. It can be used as an index in treatment. It is also a measure of adaptation, since pigment formation, horny layer thickening and chemical alterations of the skin cell proteins run parallel.

EYE

The cornea begins to absorb at 3,600 angstroms and transmits to between 2,950 and 3,000 angstroms, and the crystalline lens transmits to 3,060-4,190 angstroms, according to age. The vitreous transmits wavelengths as short as 2,300 angstroms, with a broad absorption band from 2,500 to 2,800 angstroms. The lens absorbs wavelengths as short as 2,950 angstroms with no ill effects, but shorter wavelengths produce a severe ophthalmia. Sunlight is ordinarily harmless but when the ultraviolet component is increased by reflection, as from sand, water, ice or snow, it produces "snow blindness." [8] Glowing arcs and metals which emit energy shorter than 2,950 angstroms are injurious and special ultraviolet absorbing glasses should be worn. The damage is usually limited to conjunctivitis and blepharitis, with prickling pain and uncomfortable foreign body sensation. Edema and contraction of the lids and corneal erosion may occur. Long continued exposure to intense ultraviolet may produce functional disturbances, such as color scotomas and constriction of the peripheral field. Amblyopia and central scotoma have been noted in "snow blindness." "Eclipse blindness" is due to intense local action of infra-red rays.

It is still a question as to whether intense ultraviolet produces lenticular cataract. Many incline to the view that glass workers' cataract is due to the intense infrared rays which interfere with the nutritional functions of the ciliary body. It is probable that the higher incidence of cataracts in workers exposed to molten glass and metals is due to increased rate of precipitation of light-denatured protein when the lens is heated above body temperature by exposure to large sources of radiant heat and when low concentrations of calcium, or other substances producing a similar effect, are present.[9]

Claims have been made that some persons can see wavelengths as short as 3,130 angstroms. This is due to excitation of the retina by fluorescent (longer) wavelengths. The aphakic eye sees shorter wavelengths than the normal eye.

BLOOD

Long continued darkness produces no marked effect as long as the diet is satisfactory. There is no such thing as "tropical anemia." The number of reds, whites and platelets may be made to increase by appropriate irradiation. Irradiation produces a lowered blood sugar, increased sugar tolerance, increased blood calcium, relative lymphocytosis and eosinophilia. In lymph an increase in protein, a decrease in sugar, an increase in calcium and an increase in cell number have been observed. A leukopenia in peripheral blood and a leukocytosis in splanchnic blood has been recorded.

While irradiation with ultraviolet may have some effect on secondary anemia, this is limited and not specific and far less efficient than dietetic and drug treatment.[10]

Intense ultraviolet radiation may result in abnormal white blood cell counts.[11] There is no unequivocal evidence that ultraviolet radiation increases resistance to specific or general infection, although a relationship between sunlight and the general course and character of disease, growth and nutrition has been demonstrated.[12]

4. Brackett, F. S., in Cold Spring Harbor Symposia on Quantitative Biology, 1933, vol. 1, p. 264.

5. Sir Thomas Lewis in 1927 demonstrated that the response of cutaneous vessels to mechanical, electrical, thermal and chemical injury is triple. There is (1) a reddening due to capillary dilatation, (2) a mottled red flare with crenated edges, the result of arteriolar dilatation, and (3) a wheal, due to increased permeability of the minute vessels which permits the escape of fluid, closely resembling plasma in composition, into the tissue spaces.

6. Histamine when introduced into the skin produces a typical triple response, and ultraviolet rays elicit a triple response owing to the local liberation in the skin of histamine or of some closely related substance (H-substance).

7. Laurens: Physiological Effects of Radiant Energy, p. 124; Sunlight and Health.[8]

8. Laurens: Physiological Effects of Radiant Energy, p. 148. Ellinger: Biologische Grundlagen der Strahlenbehandlung, p. 165.

9. Clark, J. H.: Am. J. Physiol. 113: 538 (Nov.) 1935.

10. Laurens: Physiological Effects of Radiant Energy, p. 188; Sunlight and Health.[8] Seyderhelm, Richard: Klin. Wchnschr. 13: 628 (April 9) 1932. Fervers, C.: Verh. Klin. 29: 1052 (July 28) 1933; Deutsches Arch. f. klin. Med. 176: 226, 1933; Deutsche med. Wchnschr. 59: 1922 (Dec. 29) 1933.

11. Kennedy, W. P., and MacKay, Ian: J. Physiol. 87: 336 (Sept. 8) 1936; J. Path. & Bact. 44: 701 (May) 1937. Blanquero, A. D.: J. Physiol. 78: 338 (June) 1933. de Rudder, B.: Klin. Wchnschr. 13: 167 (Feb. 5) 1934.

12. Laurens: Physiological Effects of Radiant Energy, pp. 232, 259.

CIRCULATION

There is evidence that sunlight and artificial radiant energy may lower blood pressure, normal and elevated.[12] Certain experimenters, notably Laurens and his co-workers,[13] appear to have demonstrated that the energy emitted by carbon arcs lowers the blood pressure of animals and human beings. Following irradiation intense enough to produce erythema the systolic blood pressure of hypertensive persons may drop an average of 17 mm. (range 2 to 41), the diastolic of 7 mm. (range 2 to 20). The cardiac output (volume per minute) usually increases when the blood pressure is lowered. The precise mechanism involved in the apparent fall in blood pressure obtained under these experimental conditions may possibly be due to factors other than the ultraviolet rays themselves. From a clinical standpoint the claim that ultraviolet rays reduce blood pressure does not appear to have been sufficiently established by the majority of those who have had long experience with natural or artificial heliotherapy to command acceptance. Most of them feel that, while exposure of the entire body to ultraviolet rays may produce some reduction in blood pressure in certain individuals, this reduction cannot be depended on and is too slight and inconstant to be of clinical value.[14]

The lowered blood pressure of persons living in the tropics is the result of the action of a number of characteristics, racial, mode of life, meteorological conditions and their changes and cannot be correlated with the quantity and quality of radiation.

Intense irradiation may markedly accelerate the heart, but this is not specific for ultraviolet. The pulse may become "fuller" and "stronger" during and following a course of irradiations, correlated with increased minute volume.

METABOLISM

Irradiation of moderate intensity increases endogenous nitrogen metabolism. Residual nitrogen is usually diminished. The excretion of uric acid is said to increase, giving support to the use of ultraviolet in the treatment of gout. Ultraviolet irradiation may double the fat content of the blood, cholesterol increasing by 30 per cent.

The blood sugar of normal men is not influenced to any extent by ultraviolet irradiation, while in some persons with diabetes the blood sugar may be temporarily diminished. The decrease is probably due to increased excretion of insulin. The diminution in blood sugar may be accompanied by increased storage of glycogen in the heart, liver and muscle.[15]

Irradiation of lactating women may increase to some extent the quantity and antirachitic potency of the milk.[16]

The effect of ultraviolet irradiation on respiration is to make it easier, deeper and less frequent. Total ventilation per minute remains constant.[17] It has been generally accepted that basal metabolism is not influenced by ultraviolet irradiation. When an increase in metabolic rate is observed upon insolating the nude body it is due preeminently to the cooling effect of the moving air. If the air temperature is high with little or no air movement, the chemical heat regulating mechanism is brought into action and the metabolic rate diminishes. Lehmann and Szakáll [18] have demonstrated that brief, intense irradiation, resulting in erythema, leads to an increase in metabolic rate lasting as long as twenty-two hours. Repeated irradiation produces a diminution of between 10 and 15 per cent in basal rate, still demonstrable from three to four weeks after the last irradiation. Parallel with this diminution there is an increased respiratory quotient, from 0.75 to 0.85 to more than 1.0, indicating a preferential combustion of carbohydrate.[19] Ultraviolet irradiation exerts a glycogen storing effect, preventing the lowering of the respiratory quotient after muscular exercise, which lowering is due to glycogen impoverishment.

According to Holtz and Wöllpert,[20] ultraviolet irradiation prevents clinical evidence of scurvy in guinea pigs and man due to increased metabolic rate.

GROWTH

Practically all of the attempts to show effects of light on normal growth processes of man and animals have been negative. Animals will grow as well in darkness as in light if the diet is complete. A rise in the growth curve (height and weight) of children is reported in the spring (March to June), a drop during the hot summer months, a second rise in autumn (September to December) and a depression in winter (December to February).[21] Frank [22] found no apparent correlation with temperature, precipitation or sunlight. Exposure to artificial sources, emitting both short and long waves, produces small increases in height, regarded by Nylin [23] as significant. The increase in weight was at a minimum when the increase in height was maximum, and when there was no irradiation the increase in height was minimum while increase in weight was maximum. Growth curves of Australian infants show that seasonal differences are not large, regular or consistent.[24]

A gain in weight of rabbits living under laboratory conditions and exposed to neon light has been demonstrated.[25] Most of the energy emitted by the lamps was between 5,800 and 7,600 angstroms, the ultraviolet components extending from 3,370 to 3,620 angstroms, the strongest rays being between 3,460 and 3,480 angstroms. The chick requires the ultraviolet as well as the longer portion of the solar spectrum in order to grow normally. Cod liver oil, however, is able to compensate for deficiency in any part of the spectrum.[26] The production and the fertility of eggs are similarly influenced.

Goldblatt and Soames, Steenbock and Black and Hume [27] demonstrated that a growth promoting factor could be induced in rats in vivo. If rats are kept on a diet deficient in growth promoting factors until they cease gaining weight for about four weeks, their livers, fed to other rats, do not possess growth promoting factors. But if, after complete stoppage of growth, the

13. Laurens: Physiological Effects of Radiant Energy, p. 168. Johnson, J. R.; Pollack, B. E.; Mayerson, H. S., and Laurens, Henry: Am. J. Physiol. 114: 294 (Feb.) 1936. Laurens, Henry: Arch. Phys. Therapy 17: 199 (April) 1936.
14. Regulations to Govern Advertising of Ultraviolet Generators to the Medical Profession Only, J. A. M. A. 108: 841-842 (March 17) 1934.
15. Laurens: Physiological Effects of Radiant Energy, p. 253. Ellinger: Biologische Grundlagen der Strahlenbehandlung, p. 192.
16. Laurens: Physiological Effects of Radiant Energy, p. 354. Ellinger: Biologische Grundlagen der Strahlenbehandlung, p. 188.
17. Laurens: Physiological Effects of Radiant Energy, pp. 475, 482.
18. Lehmann, G., and Szakáll, A.: Arbeitsphysiol. 5: 278, 1932. Lehmann, G.: Strahlentherapie 49: 264 (Oct. 4) 1933.
19. Ellinger: Biologische Grundlagen der Strahlenbehandlung, p. 166. Mayerson: Symposia on Quantitative Biology 3: 308, 1936.
20. Holtz, F., and Wöllpert, K.: Arch. f. exper. Path. u. Pharmakol. 180: 164, 1936.
21. Laurens: Physiological Effects of Radiant Energy, p. 345.
22. Frank, H.: Arch. f. Kinderh. 75: 1 (Sept.) 1924.
23. Nylin, G.: Acta. med. Scandinav., 1929, supp. 31, p. 1.
24. Cleaver, F. W.: M. J. Australia 2: 543 (May 6) 1933; 2: 182 (Aug. 19) 1933; 2: 647 (May 9) 1936.
25. Laurens: Physiological Effects of Radiant Energy, pp. 260, 348.
26. Laurens: Physiological Effects of Radiant Energy, pp. 294, 356, 361.
27. Laurens: Physiological Effects of Radiant Energy, p. 346.

rats are irradiated with a quartz mercury lamp for a few weeks their livers acquire the property of stimulating for a short while the gain in weight of rats that have ceased growing on a diet deficient in growth promoting factors. These results are due to the activation of vitamin D which is stored in the liver. This was the first actual demonstration that inert provitamin D could be "activated" into vitamin D.

Ultraviolet has no influence on the activity of the thyroid.[28] The goiter producing power of cabbage is reported to be increased by ultraviolet irradiation.

MINERAL METABOLISM

Ultraviolet irradiation with wavelengths shorter than 3,130 (particularly 2,967 angstroms) exerts an influence on calcium and phosphorus even when the diet is adequate.[29] But of even greater importance from the standpoint of protection against dietary deficiencies is the action of ultraviolet radiation in rectifying partial lack of the components necessary for proper calcification of bone and teeth.[30]

Ultraviolet irradiation gives rise, from the provitamins in the skin, to vitamin D, the agent which promotes normal calcium anabolism and retention of phosphorus. Therefore it may prevent and cure rickets, adult as well as infantile, promote growth and prevent excessive loss of lime from the body. It apparently does not influence the healing of fractures.[31] It is necessary not only for the development of teeth but for their protection later in life. In dental caries, rickets is only one of several etiologic factors. Enamel is an epithelial tissue, while bone and dentine are connective tissues.[32]

Ultraviolet irradiation may be used in the treatment of infantile tetany, a symptom complex occurring in rickets when the blood calcium is low. The treatment of choice is a combination of a calcium salt (lactate or gluconate), a diet low in phosphate and optimal vitamin D.[33] Latent tetany may become manifest when rachitic infants are irradiated if sufficient calcium is not available, owing to the suddenly increased mobilization and deposition of calcium in the growing bones.

Irradiation of normal rabbits may produce a marked hypertrophy of the external parathyroid which may represent an increased factor of safety to protect the calcium level under conditions of emergency. Keeping chicks in darkness gives rise to a hyperplasia which may be prevented by ultraviolet irradiation. While irradiation of parathyroidectomized animals and man will keep them free from tetany, vitamin D itself is far more efficient.

When an animal is irradiated, its skin, liver, fat and muscle become antirachitically active.[34] Ultraviolet radiation forms vitamin D either in the cells of the living organism or in its foodstuffs. The action of a foodstuff artificially rendered antirachitic by irradiation is qualitatively the same as the action of a naturally occurring foodstuff containing the antirachitic factor. Slight qualitative differences may exist depending on whether the foodstuff is of animal or vegetable origin.[35] Direct exposure of the skin to ultraviolet rays from the sun or from artificial sources results in the formation of vitamin D within the organism, but the Council cannot recognize statements or implications that vitamin D has all the beneficial effects of exposure to sunshine. Not only have various foodstuffs been irradiated to increase their content of vitamin D but there has been a tendency to add preformed vitamin D to foods.[36] Milk is poor in vtamin D but is an excellent source of calcium and phosphorus. The Council on Foods therefore considers that, of all the common foods available, milk is most suitable as a carrier of vitamin D. The Council has recently made the decision that for the present milk is the only common food which will be considered for acceptance when fortified with vitamin D. One of the methods used to impart antirachitic properties to accepted vitamin D milks is irradiation with ultraviolet shorter than 3,130 angstroms.

Activation depends on the same wavelengths effective directly in the cure and prevention of rickets.

Vitamin D in some way regulates the passage of calcium and phosphorus across the intestinal wall. It exerts its action by raising the blood calcium and/or phosphate. This is associated usually with an increased net absorption from the intestine, though under certain circumstances the bones may provide the calcium and phosphate. The net retention of the animal as a whole is the resultant of two opposing factors: (1) increased absorption from the intestine or diminished excretion to it and (2) increased excretion by the kidney. As the dosage of vitamin D becomes larger, the second factor overtakes the first.

It has been asserted that vitamin D acts through stimulating the parathyroid glands.[37] But the effects of irradiated ergosterol and of parathyroid extract on the plasma phosphatase, on the blood and urine chemistry and on the microscopic appearance and chemical composition of the bones are dissimilar. Parathyroid extract, although it relieves the tetany associated with rickets in infants, fails to induce healing in the rachitic metaphysis and may actually retard it, whereas vitamin D promotes calcification in the metaphysis and in so doing may even temporarily produce hypocalcemia and tetany unless a sufficient amount of calcium is provided. The resemblances between the effects of vitamin D in excess on a diet poor in calcium and those produced by excess of the parathyroid hormone are fortuitous. Similarly the effects of excess vitamin D and of parathyroidectomy on blood calcium are in opposite directions but not connected by any causal relationship.[38] Vitamin D given to rickety animals increases the adsorbable fractions of calcium and the total adsorbable phosphorus. It seems to be the diffusible, adsorbable, calcium phosphorus complex which provides the substance for the calcification of bone. Parathyroid hormone, unlike vitamin D, increases the ion-containing fractions.

28. Laurens: Physiological Effects of Radiant Energy, p. 280. Mayerson, H. S.: Am. J. Physiol. **113**: 659 (Nov.) 1935. Webster, Bruce: Proc. Soc. Exper. Biol. & Med. **29**: 1070 (June) 1932.

29. Laurens: Physiological Effects of Radiant Energy, pp. 257, 261.

30. Laurens: Physiological Effects of Radiant Energy, p. 285; Cold Spring Harbor Symposia on Quantitative Biology,[1] Sunlight and Health.[2] Bunker, J. W. M., and Harris, R. S.: New England J. Med. **218**: 165 (Jan. 28) 1937.

31. Sweeney, H. M., and Laurens, Henry: Effect of Carbon Arc Radiation on Healing of Bone, Arch. Surg. **31**: 395 (Sept.) 1935.

32. Laurens: Physiological Effects of Radiant Energy, p. 290; Cold Spring Harbor Symposia on Quantitative Biology,[1] Sunlight and Health.[2] Schour, Isaac: Calcium Metabolism and Teeth, J. A. M. A. **110**: 870 (March 19) 1938.

33. Laurens: Physiological Effects of Radiant Energy, p. 334; Cold Spring Harbor Symposia on Quantitative Biology,[1] Sunlight and Health.[2]

34. Laurens: Physiological Effects of Radiant Energy, pp. 347, 389; Cold Spring Harbor Symposia on Quantitative Biology,[1] Sunlight and Health.[2]

35. The Present Status of Vitamin D Milk, J. A. M. A. **108**: 206 (Jan. 16) 1937.

36. Reports of the Council on Foods, J. A. M. A. **108**: 1515 (May 1) 1937, **110**: 511 (Feb. 12) 1938. Vitamin D Milk, Current Comment, ibid. **108**: 1894 (May 29) 1937.

37. Taylor, N. B.; Weld, C. B., and Sykes, J. F.: Proc. Roy. Soc. London s. B **116**: 10 (Sept. 1) 1934; Brit. J. Exper. Path. **17**: 104 (April) 1936.

38. Dale, H.; Marble, A., and Marks, H. P.: Proc. Roy. Soc. London, s. B. **115**: 522 (Oct. 1) 1932. Taylor, Weld and Sykes, ibid. **116**: 0 (Sept. 1) 1934. Shelling, D. H.: The Parathyroids in Health and in Disease, St. Louis, C. V. Mosby Company, 1935, p. 165.

Vitamin D occurs in relatively few foodstuffs, though it can be developed in some by appropriate irradiation. It rarely, if ever, occurs in living plants. Dead plant tissue by insolation may acquire slight potency. In the animal kingdom vitamin D is widespread but is abundant only in fish. Its origin is obscure; some of it may originate by synthesis. Higher animals lack the power to synthesize vitamin D and their requirements are met by ingesting it or by exposing the body surface to sunlight. In all cases, except possibly fish, the ultimate origin of vitamin D is traceable to sterols activated by ultraviolet rays.[39]

PHOTODYNAMIC OR OPTICAL SENSITIZATION; PATHOLOGY

It is possible to sensitize living cells, like photographic plates, and thus produce abnormal conditions in which light or luminous rays and longer ultraviolet rays are as active as the shorter ultraviolet.[40] The effective wavelengths are those absorbed by the sensitizer. Sensitization occurs at 4,900-5,800, 3,650-3,130 and 2,500 angstroms. The sensitizers are exogenous, taken in with the food, and endogenous, arising within the organism. Most sensitizing substances are fluorescent, but fluorescence is not the cause. Ultraviolet effects can occur either in the presence or in the absence of oxygen, but the photodynamic effects occur only in its presence. Among photodynamic sensitizers are erythrosin, rose bengal, rhodamin, anthracene derivatives, acridine dyes, methylene blue, quinine, chlorophyll, hypericin and the porphyrins.

Continued and prolonged exposure to sunlight or to the energy of artificial sources containing much ultraviolet may cause systemic disturbances as well as inflammatory and degenerative changes in the skin. The systemic disturbances are not understood, but deaths of infants following short exposure have been reported and severe reactions in adults.[41]

The porphyrins may sometimes sensitize, as in lead poisoning,[42] but even when present in large amounts, as in sulfonal and trional poisoning, they may not. Light sensitivity may even be reduced when porphyrins are present in large quantities, as in hydroa vacciniforme, which would thus seem to be a "climate disease" in which abnormal metabolism of porphyrins is the underlying factor and the combined working of ultraviolet and minor injury (in the form of increased air movement in the spring) the releasing factor. Again, porphyria may not be present in some cases of hydroa vacciniforme and in these instances there may be hypersensitivity to repeated ultraviolet irradiations as well as normal sensitivity. Hydroa vacciniforme is probably a symptom found in numerous conditions.[43] It is further possible that porphyrins play no part in light sensitivity. They may represent products of skin injury and be a result rather than a cause of dermal sensitization. Porphyrinuria may be the result rather than the cause of the disease, and the excretion of porphyrin is not a constant manifestation of this group of diseases.[44]

Reports on treatment with photodyn and with sulfanilamide indicate that in some persons unpleasant results of photosensitivity may occur.[45]

Urticaria solare may occur after short exposure to sunlight. It is accompanied by immediate and severe erythema, edema and itching. Normal erythema is produced by ultraviolet radiation of wavelengths shorter than 3,150 angstroms. It is a delayed reaction, a "triple response," appearing an hour or more after moderate exposures, and is followed later by pigmentation. Both erythema and pigmentation are independent of oxygen. Urticaria solare manifests itself as a "triple response" and is produced by luminous violet and blue rays (from 3,900 to 5,300 angstroms). It is not followed by pigmentation and is independent of oxygen. Photodynamic "triple response," produced by intradermally injecting rose bengal and hematoporphyrin, is similar in appearance to urticaria solare and is produced by the wavelengths absorbed by the particular sensitizer. The response is immediate. It is followed by pigmentation and does not occur in the absence of oxygen. The mechanism of the urticarial response includes a photochemical reaction not markedly affected by temperature and a thermal reaction greatly modified by changes in temperature. The latter is probably due to the action of the H-like substance on the small vessels of the skin. The photosensitizer is a carotenoid pigment.[46]

The relation of ultraviolet to pellagra is difficult to evaluate.[47] The clinical impression that sunlight is harmful to the pellagrin has been confirmed again by Smith and Ruffin,[48] according to whom the seasonal incidence of pellagra is conditioned by the degree of dietary deficiency and the intensity of the solar radiation. Exposure of a susceptible subject, who has been subsisting on a deficient diet, to the sun's rays precipitates the acute manifestations of pellagra. Pellagrous lesions, however, occur in the absence of sunlight and they may heal in the presence of exposure to direct sunlight or to ultraviolet radiation. Spies [49] suggests that pellagra is a systemic condition which in itself is the real cause of pellagrous dermatitis and not exposure to the rays of the sun. Under conditions sunlight may act as an irritant and precipitate cutaneous lesions. But any kind of irritant may predispose an area to localization of the dermatitis, the absence of which, however, indicates little as to the cure of the disease. Porphyrinuria in pellagra has been described.[50]

Repeated irritation by ultraviolet rays can cause chronic lesions, which may be precancerous, such as

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40. Laurens: Physiological Effects of Radiant Energy, p. 488; Cold Spring Harbor Symposia on Quantitative Biology: Sunlight and Health, Blum, H. F.: Physiol. Rev. **13**: 23 (Jan.) 1932; Cold Spring Harbor Symposia on Quantitative Biology, 1935, vol. 3, p. 318; Ellinger: Biologische Grundlagen der Strahlenbehandlung, p. 196.

41. Greenbaum, S. S.: Dermatoses Due to Light Sensitization, Am. J. Dis. Child. **34**: 81 (July) 1927. MacCormac, H., and McCrea, H. M.: Brit. M. J. **1**: 693 (April 11) 1925.

42. Blum, H. F.; Allington, H., and West, R. J.: J. Clin. Investigation **14**: 435 (July) 1935.

43. Laurens: Physiological Effects of Radiant Energy, pp. 492, 510. Blum, H. F.: Ann. Int. Med. **6**: 877 (Jan.) 1933. Ellinger: Biologische Grundlagen der Strahlenbehandlung, pp. 198, 203. Blum, Allington and West.[42]

44. Mathews, F. P.: Photosensitization and the Photodynamic Diseases of Man and the Lower Animals, Arch. Path. **21**: 399 (March) 1937. Blum, Allington and West.[42]

45. Blum, H. F., and Templeton, H. J.: Sequel to Treatment with Photodyn, J. A. M. A. **108**: 548 (Feb. 13) 1937. Goodman, M. H., and Levy, C. S.: The Development of a Cutaneous Eruption (Toxicodermatosis), ibid. **109**: 1009 (Sept. 25) 1937. Schonberg, I. L.: Purpuric and Scarlatiniform Eruption Following Sulfanilamide, ibid., p. 1035. Menville, J. G., and Archinard, J. J.: Skin Eruptions in Patients Receiving Sulfanilamide, ibid., p. 1008. Frank, L. J.: Dermatitis from Sulfanilamide, ibid., p. 1011. Finney, J. O.: Severe Dermatitis Medicamentosa Following the Administration of Sulfanilamide, ibid. **109**: 1982 (Dec. 11) 1937. Myers, G. B.; Vonder Heide, E. C., and Bakerabi, Matthew: Exfoliative Dermatitis Following Sulfanilamide, ibid., p. 1963. Brunsting, L. A.: Proc. Staff Meet., Mayo Clin. **12**: 614 (Sept. 29) 1937.

46. Blum, H. F.; Watrous, W. G., and West, R. J.: Am. J. Physiol. **112**: 350 (Oct.) 1935. Blum, H. F., and West, R. J.: J. Clin. Investigation **16**: 261 (March) 1937. Blum, Allington and West.[42]

47. Laurens: Physiological Effects of Radiant Energy, p. 511; Cold Spring Harbor Symposia on Quantitative Biology, 1935, vol. 3, p. 299.

48. Smith, D. T., and Ruffin, J. M.: Effect of Sunlight on the Clinical Manifestations of Pellagra, Arch. Int. Med. **59**: 631 (April) 1937.

49. Spies, T. D.: Relationship of Pellagrous Dermatitis to Sunlight, Arch. Int. Med. **58**: 920 (Nov.) 1935.

50. Beckh, W.; Ellinger, P., and Spies, T. D.: Quart. J. Med. **6**: 305 (July) 1937.

keratosis senilis and xeroderma pigmentosum.[51] It is an open question as to whether xeroderma pigmentosum and skin cancer are really associated with photodynamic action.[52] Roffo[53] believes that in the carcinogenic production of skin cancer by ultraviolet the photodynamic action of cholesterol plays the most important part. The photo-activity is due to the emanation of hydrogen peroxide or similar products. Körbler[54] does not believe that the frequency of skin cancer is due solely to exposure to strong sunlight, although it may result in sensitization due to local increase in porphyrin.[55]

The action of radiation is paradoxical in this regard. If the cells of the basal layer of the skin receive an excessive quantity of radiant energy the two protective processes of cornification and pigmentation become abnormally great (hyperkeratosis and hyperpigmentation) and a third degenerative process starts. People lacking in pigment or much exposed to ultraviolet rays show the highest percentage of skin cancer. The developing neoplasm occurs in the place of greatest proliferation, beginning in a wartlike hyperkeratosis, a precancerous change. A cancer develops from a precancerous lesion not only as a result of a continuation of the initial insult but as a result of any continued trauma. Thus ultraviolet rays do not cause cancer in themselves. They produce characteristic cell changes leading to precancerous lesions in the skin. Any irritation, including continually and excessively applied ultraviolet rays, can cause the precancerous change to become malignant.[56]

BACTERIA

Almost all bacteria may be killed or attenuated by ultraviolet rays, but there is considerable variation in the rapidity of their destruction. Those which live in the animal body are most easily affected. Those living free in nature adapt themselves to the action of sunlight and so become relatively resistant to irradiation. Direct sunlight is a powerful germicide for all except a limited number of species like the thio-, or sulfur, bacteria, which utilize sunlight for metabolic processes.[57]

There is general similarity between absorption curves and the reciprocals of curves for incident bactericidal energy. The curves rise rapidly from low levels beyond 3,000 angstroms to a maximum between 2,600 and 2,700 angstroms, then drop to a minimum near 2,400 angstroms and rise again toward a limit beyond the range of experimental observation. The reciprocal of the bactericidal curves matches the absorption curves of certain nucleoprotein derivatives, cytosin, thymin and uracil, more closely than those of various amino acids such as tyrosine, tryptophan or phenylalanine.

The curves expressing bactericidal effect are quite similar for all bacteria but some are more sensitive than others. Beginning with the diphtheria bacillus the effect increases for B. coli, staphylococci and cholera, culminating with typhus. Tubercle bacilli capable of growth disappear at the earliest in two hours and at the latest in five hours when exposed to sunlight.

Bactericidal action is perhaps of only theoretical interest because the action of ultraviolet is effective only in very thin layers, and therefore a therapeutic action can occur only in the most superficial infections and with strong dosage. The use of ultraviolet radiation for the elimination of bacteria in drinking water has received some attention, but insufficient evidence is available to recommend this as a safe process for sterilization. More general use has been made in partial sterilization of water in swimming pools. Here again the evidence is not conclusive. Ultraviolet rays have been used in the diagnosis of ringworm and mycotic infections of the skin. Bacterial cultures may be differentiated by means of fluorescence in ultraviolet rays under certain special conditions.[58]

Wells and his co-workers[59] developed an apparatus to spray organisms into the air and another to centrifuge the air so as to concentrate bacteria and viruses contained in them. They studied the length of time during which droplets of varying sizes containing bacteria remain suspended in the air and tested the viability of floating organisms. Irradiation with a quartz mercury vapor lamp was found to be the most effective measure to sterilize air. Air contaminated with known bacteria was passed at definite distances through the rays. Those which divide in one plane, such as streptococci and pneumococci, were easily destroyed, but the outer layers of cocci which grow in clumps protected the inner ones from the rays. The virus of influenza was easily destroyed. Hart[60] has demonstrated that with bactericidal radiant energy operating room infections are greatly reduced, postoperative temperature in supposedly clean cases is lower and of shorter duration, there is better healing, and the patient has less postoperative discomfort.

Toxins as a rule are not very photostable, while antitoxins are resistant to the action of ultraviolet energy.[61] A comparison of the effects of ultraviolet on vaccine virus and on Staphylococcus aureus shows that energy sufficient to inactivate the virus completely kills all the staphylococci. Skin repeatedly exposed to ultraviolet rays is less susceptible to the action of vaccine virus than is nonirradiated skin. The incident energies (between 2,380 and 3,020 angstroms) necessary to kill Staphylococcus aureus and to inactivate its homologous bacteriophage run strictly parallel, indicating that in the two instances the same organic structures are absorbing the radiations.[62]

The inactivation of the virus of tobacco mosaic is confined to wavelengths shorter than 3,100 angstroms and the energy required to produce any perceptible effect at this wavelength is more than 100 times that necessary at 2,652 angstroms. The energy values representing 100 per cent killing of Serratia marescens are far below the values having any measurable effect on the virus. The wavelength of maximum effect is at 2,652 angstroms. The resistance ratio of virus to bacteria is 200:1. In a comparison of the relative resis-

51. Laurens: Physiological Effects of Radiant Energy, p. 513; Cold Spring Harbor Symposia on Quantitative Biology, 1935, vol. 3, p. 289.
52. Mathews.[4]
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60. Hart, Deryl: J. Thoracic Surg. 6:45 (Oct.) 1936; Operation Room Infections, Arch. Surg. 34:874 (May) 1937; Surgery 1:770 (May) 1937.
61. Laurens: Physiological Effects of Radiant Energy, p. 556.
62. Gates, F. L.: J. Exper. Med. 60:179 (Aug.) 1934.

tance of B. subtilis (vegetative and spore forms) and of B. megatherium (spore form) as compared with the resistance of S. marescens and the virus of tobacco mosaic to ultraviolet irradiation, the curves for spore and vegetative stages are generally conformable. Some spores (B. megatherium) are more resistant than others (B. subtilis). The resistance of the virus is so much greater than the resistance of spore stages as to be of a different order of magnitude.[63] Exposure to ultraviolet rays inactivates poliomyelitis virus.[64] Diphtheria toxin is destroyed by ultraviolet irradiation and can be sensitized to light. Tetanus toxin keeps less well in light than in the dark and can be shown to be inactivated by ultraviolet rays and by light when photodynamically sensitized.[65]

Both amboceptor and complement can be killed by ultraviolet, the extent of change depending on the albumin content of the serum and the concentration of antibody.[65] Serum complement is much more sensitive to irradiation than the b-lysin of serum or the bactericidal substances of leukocytes.[66] The immunizing power of bacteria, as measured by the agglutinin titer of injected rabbits, decreases considerably when the bacteria are intensively irradiated with ultraviolet rays.[67] Bacteria, bacteriophages and viruses are readily sensitized by photodynamic substances, particularly eosin and methylene blue.[68] Most of the properties of venoms are weakened or completely inactivated by irradiation. The venoms of cobra, daboia and rattlesnake may be photodynamically inactivated.[69]

PROTOZOA

The lethal effect on Paramecium micromultinucleata increases rapidly for wavelengths shorter than 3,000 angstroms and reaches a maximum at 2,650 angstroms, from which it diminishes for shorter wavelengths.[70] According to Giese and Leighton,[71] 2,654, 2,804 and 3,025 angstroms are about equally effective; 2,537 angstroms is less efficient. Swann and del Rosario[72] found that 2,536 and 2,894 killed Euglena readily, while 3,132 and 3,654 had practically no effect.

PROTEINS

Irradiation of solutions of proteins produces several effects, including shift in H ion concentration, denaturation, coagulation and increased filtering capacity for ultraviolet rays between 4,000 and 2,670.[73] The coagulation of isoelectric egg albumin solutions on exposure to ultraviolet rays involves three processes: (1) light denaturation of the molecule, (2) a reaction between the light denaturated molecule and water, and (3) flocculation on moderate heating of the denatured molecules to form a coagulum.[74] Physiologic applications of the changes produced in proteins and amino acids by irradiation include the production of erythema, coagulation of lens protein, and biologic oxidations and reductions.

FERMENTS

Ferments (enzymes) can be stimulated to increased activity, inhibited or destroyed, depending on the wavelength and intensity of the energy and the duration of exposure.[75]

The ultraviolet absorption spectrum of Northrup's pure crystalline pepsin bears a general resemblance to the absorption spectrums for urease and tyrosine. The absorption band is maximum for 2,750-2,800 angstroms and minimum near 2,500 angstroms. Tests of the rate of inactivation by different bands of ultraviolet, in relation to the absorbed energy, indicate that the destruction spectrum of the enzyme agrees essentially with its absorption spectrum and is similar to that of urease.[76]

The absorption curves of yeast are similar to those of certain enzymes and of nucleoprotein derivatives. The lethal spectrum of yeast in the location of its energy peaks on the wavelength scale resembles the absorption curve of the pyrimidine bases of nucleic acid, cytosin and uracil.[77] Light retards fermentation but ultraviolet rays markedly accelerate it.[78]

Nicotine is darkened and decomposed (oxidized) by ultraviolet rays and loses its vasoconstricting power by destruction of the pyrrolidine ring.[79] Epinephrine solutions are oxidized and lose all normal actions. Appropriate irradiation of solutions of synephrin salts increases their action, while overirradiation destroys their activity.[80] Ultraviolet radiation does not increase the yield of digitalis glucosides.[81]

MODE OF ACTION

Physiologic effects have their origin in photochemical reactions produced when the energy is absorbed. The effect is physical, then chemical, and finally biologic.[82]

Photochemical reactions are initiated by a change in electron configuration and velocity. If the incident energy is short enough it will produce vibrations in the electrons, which will be activated. These may then be ejected and the molecule thus ionized; or they may be displaced to an outer orbit, and the atom or molecule activated. Photoelectric phenomena are thus at the basis of all the subsequent reactions. The pathologic action of radiation may be considered as the result of upsetting the electronic configuration so that the proteins attain an isoelectric state and coagulate (aggregation). The nucleus of the cell is the chief point of injury.

When a solution of albumin is irradiated in an atmosphere of nitrogen there arises a reversibly oxidizable substance. The irradiated albumin gives the sulfhydril reaction and it is suggested that when the skin is irradiated there arises in it a substance of the nature and with the functions of sulfhydril bodies.[83] Reversible redox systems (glutathione and other SH substances) play important parts in cell function.[84]

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70. Laurens: Physiological Effects of Radiant Energy, p. 561.
71. Giese, A. C., and Leighton, P. A.: J. Gen. Physiol. 19:537 (March) 1936.
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82. Laurens: Physiological Effects of Radiant Energy, p. 568.
83. Wels, P.: Arch. f. exper. Path. u. Pharmakol. 171:466, 1933.
84. Holtz, P.: Arch. f. exper. Path. u. Pharmakol. 180:141, 1936.

Ultraviolet radiation causes an increase in permeability, liquefaction of the main mass of protoplasm and then coagulation.[85] The primary biologic process is on the large protein molecule and the problem concerns the action on the colloidal systems of the living cell. The effect is a photochemical one, and when there is a photochemical change or decomposition there is a change in the electrical charge of the colloids.[86]

Ultraviolet rays stimulate the basal epidermal cells, arousing them to increased activity and quickened metabolism, so that they set free, in increased amounts, the products of their metabolism. Cellular injury and degeneration, with the consequent setting free of cell decomposition products, may produce beneficial or harmful effects according to the amount set free. The cell products may be (1) the result of increased activity on the part of the basal cell layer of the skin, (2) the result of damage and degeneration or (3) "activated" substances. Substances are given off which, among other things, result in cutaneous hyperemia. These are absorbed subepidermally, are transported away and act on various distant parts of the body. Too great an effect produces harm in normal and in hypersensitive persons. Too intense action, as indicated by an excessive burn, harms or kills the basal cells so that they may give off, if not abnormal chemical derivatives, excessive amounts of normal substances. Ultraviolet irradiation is shock treatment and its value depends on the individual's reaction to it. The dosage must therefore be gaged to the individual.

LIEBEL-FLARSHEIM ULTRA SHORT WAVE GENERATOR, MODEL SW-400, ACCEPTABLE

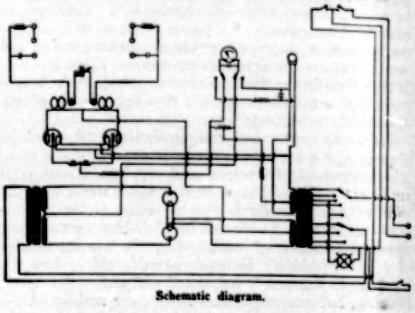
Manufacturer: The Liebel-Flarsheim Company, 303 West Third Street, Cincinnati.

The Liebel-Flarsheim SW-400 Ultra Short Wave Generator is recommended for medical use. It is a cabinet model featuring the air-spaced plate technic according to the manufacturer. The electrode arms are counterbalanced, readily adjustable and self retaining without bracing because of frictioned joints. Horizontal and vertical adjustment of the arms is possible. The disks may be raised even higher by hand grips. Two sizes of air-spaced plates, pad and cuff electrodes are included in standard equipment, while a small localizing plate and inductance coil are available accessory equipment. This model may also be used with orificial electrodes. The unit is finished in walnut and weighs approximately 164 pounds uncrated.

Liebel-Flarsheim Ultra Short Wave Generator, Model SW-400.

A tuned plate, tuned grid circuit is utilized employing two oscillator tubes and two rectifier tubes. The wavelength is approximately 6 meters. The patient's circuit is inductively coupled to the oscillator and a variable condenser is included in the patient's circuit for resonating it with the other circuit. Power input is approximately 1,150 watts. Energy output was measured both by the calorimeter method and by the photoelectric cell and lamp load method, indicating 430 watts respectively. The firm limits its claim to 400 watts output. The temperature rise of the outside of the transformer, after the machine had been operated for two hours at full load, was approximately 38 C. There is a four point power control and an output adjuster. Line filters are to be installed to prevent radio interference.

In order to substantiate heating claims made for the unit, the firm submitted the following data: Temperature measurements were made with thermocouples inserted through a cannula into the anterior portion of the thigh to a depth of approximately 2 inches in the quadriceps extensor muscle (for the deep muscle test) and to approximately one-eighth inch for the subcutaneous test. Before the recordings were made, all the thermocouples were carefully checked and the galvanometers calibrated throughout the range of temperatures under consideration.



Schematic diagram.

All treatments were given to the patient's tolerance and a description of the technics employed together with the results of these tests are recorded here:

Air-Spaced Technic.—Two small 6 inch disks were applied in a plane parallel to the anterior portion of the thigh. The center of the lower disk was approximately 4 inches above the knee cap, the center of the upper disk approximately 6½ inches above the center of the lower. Both were spaced approximately 1 inch from the patient's skin. Thermocouples were inserted as previously described at the midpoint between the proximal edges of the disks. Temperatures of the skin were recorded at a point on the skin adjacent to the thermocouples. The averages of temperatures for six tests are given in table 1.

Inductance Cable Technic.—Six turns of the inductance cable were wrapped round the thigh with approximately 1 inch of turkish toweling beneath for spacing. Three turns were taken high on the thigh, then approximately 4 inches of spacing was allowed and three more turns were taken at that point. The average temperatures for six tests are given in table 2.

Cuff Technic.—Two cuff electrodes with two one-fourth inch felt spacers and some additional turkish toweling to a total thickness of about 1½ inches were wrapped round the thigh with about 4 inches space between the proximal edges. The thermocouples were inserted at the midpoint. Temperature rises were recorded as in table 3.

Table 1.—*Average of Six Observations, Air-Spaced Technic*

Deep Muscle		Subcutaneous		Skin	
Initial	Final	Initial	Final	Initial	Final
98.8	104.8	98.5	105.2	93.6	101.5

Table 2.—*Average of Six Observations, Cable Technic*

Deep Muscle		Subcutaneous		Skin	
Initial	Final	Initial	Final	Initial	Final
99.2	104.5	98.7	105.4	95.3	97.5

Table 3.—*Average of Six Observations, Cuff Technic*

Deep Muscle		Subcutaneous		Skin	
Initial	Final	Initial	Final	Initial	Final
98.1	105.1	99.1	103.2	93.6	98.4

85. Heilbrunn and Mazia, in Duggar: Biological Effects of Radiation 2:625, 1936. Ellinger, F.: Strahlentherapie 58:464, 1937; Nature 138:1014, 1936.

86. Ellinger: Biologische Grundlagen der Strahlenbehandlung, p. 210. Kartschagin, W. A., and Warschawer, G. S.: Strahlentherapie 40:174, 1931.

On all these tests treatment was continued for twenty minutes with recordings made at five minute intervals.

The firm submitted tests performed by a qualified investigator as evidence to show the ability of the unit to supply sufficient heat for orificial application. A Chapman electrode was used in the observations specially drilled out so that a thermometer could be passed through and brought into actual contact with the cervical tissue so that the temperature of the cervix, rather than that of the inner portion of the electrode, would be registered. The orificial applicator was connected to the left hand pad terminal of the machine. For a return path, the large air-spaced plate was connected to the right hand terminal and the plate was placed about 4 inches above the abdominal area. Temperatures were taken at five, ten, twenty and thirty minute intervals. Six such sets of tests were made. The averages are given in table 4.

TABLE 4.—*Average Temperatures for Six Sets of Observations, Orificial Technic*

Time	Temperature
55	101.5
10	107.0
20	109.5
30	110.0

The unit was tried out in a clinic acceptable to the Council and found to give satisfactory service.

In view of the foregoing report, the Council on Physical Therapy voted to accept the Liebel-Flarsheim SW-400 Ultra Short Wave Unit for inclusion in its list of accepted devices

FISCHER SHORT WAVE APPARATUS, MODEL PC, ACCEPTABLE

Manufacturer: H. G. Fischer & Co., 2324 Wabansia Avenue, Chicago.

The Fischer Short Wave Apparatus, Model PC, is recommended for medical and surgical uses. It is available as either a cabinet or a portable model with either 6 or 12 meter wavelength. The portable unit comes in a keratol covered carrying case with hand grips. This may be slipped into the cabinet housing. The latter comes in two-tone walnut and bird's-eye maple or in plain ivory. Short wave applications may be made with cuff or pad electrodes as well as with the inductance cable.

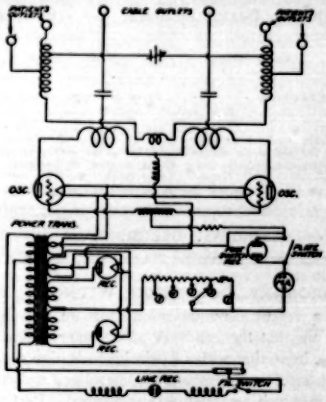
Fischer Short Wave Apparatus, Model PC.

This is a four tube unit with two rectifier tubes and two oscillator tubes. It is wired to force each tube to carry its proper load. Both models have a slightly higher wavelength with cable applications. The 6 meter unit requires a power input of approximately 650 watts and has an approximate output of 260 watts as measured by the photometric method. The transformer temperature when the unit is operated at full load is approximately 182 F.

Cabinet temperatures taken at the top and the base of the cabinet are 151 and 115 F. respectively.

A power input of approximately 750 watts is required with the 12 meter apparatus. With this unit the power output as measured by lamp load and the photometric cell method is approximately 300 watts. The transformer temperature of the apparatus when operated at full load is approximately 180 F. Temperature rises inside the cabinet at top and bottom respectively are 150 and 113 F. Radio interference has been reduced to a minimum by the use of radio frequency chokes in the power supply circuit.

In order to substantiate heating claims made for the unit, the manufacturer submitted tests performed by a reliable investigator. Four male subjects whose weight ranged from 145 to 210 pounds were used in making twenty-four tests. The technical procedure for making the tests was that outlined by the Council on Physical Therapy. The results are given in the accompanying tables.



Schematic diagram.

The following technics were used in obtaining the results recorded:

(*a*) Cuffs 3¾ by 32 inches and 3¼ by 24 inches. Three-fourths inch spacing consisting of one layer of toweling. Plate current varied from 300 to 320 milliamperes. Cuffs 7½ inches center to center and equidistant from cannula.

(*b*) Four turns of cable around the thigh. Varied from 7 to 8 inches over all. Three-fourths inch spacing consisting of one layer of one-fourth inch felt and one layer of toweling. Plate current varied from 290 to 380 milliamperes.

The Fischer 6 Meter Short Wave Apparatus, Model PC

	Deep Muscle		Oral	
(*a*) Average of six observations, cuff technic:	Initial	Final	Initial	Final
	99.5	106.8	98.3	98.8
(*b*) Average of six observations, inductance coil technic:	Deep Muscle		Oral	
	Initial	Final	Initial	Final
	99.4	107.7	98.3	98.8

The Fischer 12 Meter Short Wave Apparatus, Model PC

	Deep Muscle		Oral	
(*c*) Average of six observations, cuff technic:	Initial	Final	Initial	Final
	99.5	108.0	98.4	98.9
(*d*) Average of six observations, inductance coil technic:	Deep Muscle		Oral	
	Initial	Final	Initial	Final
	99.5	107.5	98.7	99.0

(*c*) Two cuffs, 3½ by 24 inches and 4 by 32 inches. Three-fourths inch spacing consisting of one layer of one-fourth inch felt and one layer of toweling. Plate current varied from 280 to 325 milliamperes. Cuffs varied from 7 to 8½ inches center to center and were equidistant from the cannula.

(*d*) Four turns of the cable about the thigh. Varied from 7 to 8 inches over all. Three-fourths inch spacing consisting of one layer of one-fourth inch felt and one layer of toweling. Plate current varied from 260 to 200 milliamperes.

Both models were investigated clinically by a competent physician, who reported that they rendered satisfactory service.

In view of the foregoing report, the Council on Physical Therapy voted to include the Fischer Short Wave Apparatus, Model PC, in its list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 24, 1938

CORONARY OCCLUSION WITHOUT PAIN

In a recent communication Gorham and Martin [1] point out that the incidence of coronary occlusion and cardiac infarction without pain is much higher than has been heretofore appreciated. They have analyzed 100 cases in which necropsy was performed. Forty-two of these patients suffered a fatal attack which was not accompanied by pain, while fifty-eight complained of pain of varying location, intensity and duration. Coronary occlusion was the primary cause of death in eighty of the cases, definitely contributory in fifteen and probable in five. At necropsy gross infarction of the myocardium measuring more than 1 cc. in diameter was found in every case, as well as sclerotic changes in the coronary arteries. Nineteen per cent of the patients in the group without pain gave a history of definite anginal pain previous to the final attack. A comparison of the two groups brought out that patients in the group without pain tended to be older than those in the group with pain, that the peak of mortality for the males is a decade earlier than for the females, that a history of preceding attacks of anginal pain and of hypertension is less common, that dyspnea is a prominent symptom and that a pericardial friction rub is rarely heard. Old infarctions, with absence of actual thrombosis and pericarditis, are more frequent. Pain was present in every one of fifteen patients who showed a combination of actual thrombosis of the coronary artery and acute infarction. However, a combination of fibrotic narrowing of a coronary artery without actual thrombosis, plus an old infarction and absence of pericarditis, was not accompanied by pain in twelve of seventeen cases (70 per cent). Wearn reported 53 per cent, Davis 40 per cent, Bruenn, Turner and Levy 61 per cent and Saphir and his associates 38 per cent of cases in which there was coronary occlusion and infarction without a preceding attack of pain. Kudrin found fifty cases with a history of anginal pain among 500 instances of sclerosis of the coronary artery found by him post mortem. Anginal symptoms were present in only eleven of thirty-four cases of coronary stenosis and in fifteen of thirty-six cases of coronary occlusion. Boyd and Werblow [2] believe that painless coronary thrombosis must be fairly common, since one third of their 127 patients with proved coronary thrombosis did not manifest pain. A somewhat dissenting opinion is expressed by Kennedy,[3] who found in a recent study of 200 necropsies in cases of myocardial infarction that classic pain was present in 91 per cent of the recent and 64 per cent of the old cases. It appears from numerous observations that while the presence of actual occlusion of the coronary artery favored the occurrence of pain in about two thirds of the cases, the reverse is not true. There must therefore exist still another factor besides thrombosis on which the initiation of cardiac pain depends. Gorham and Martin's study suggests that painless coronary occlusion represents a more gradually developing pathologic process in which the progressive narrowing of the artery results from fibrosis rather than from actual thrombosis.

The cause of initiation of cardiac pain has been the subject of much speculation and in recent years of extensive experimental study. Allbutt's and Wenckebach's mechanical theory of the aortic origin of pain has been largely displaced by Lewis's conception of a chemical origin of pain originating in the heart muscle. His observations on pain produced in a limb which was exercised while its blood supply was arrested led him to believe that cardiac pain was dependent on the myocardial ischemia resulting from the impairment of the coronary circulation. This led to the development in the heart muscle of an unknown chemical "P substance" which acts as a pain producing stimulus to the nerve endings. Herrick explained the absence of pain in some cases in the presence of an extreme grade of ischemia by assuming that in such areas there existed a destruction of vessels, nerves and functioning muscle so that a painful response to the new obstruction was lacking. In recently reported experiments Martin and Gorham [4] attempt to prove that the mechanical factor of tension within the coronary arteries may be of major significance in the production of pain. These authors inquire as to why the receptors of pain sensations (afferent sympathetic fibers) in the coronary arteries, like pain receptors elsewhere in the body, may not be subject to mechanical as well as chemical stimulation. Following the technic and the criteria of Lueth and Sutton, they demonstrated that a typical pain response can be elicited in a dog when tridirectional tension is applied to a coronary vessel in such a manner as to cause no change in blood flow. With this procedure the chemical factors caused by impaired coronary blood flow are completely eliminated. The authors conclude that ten-

1. Gorham, L. W., and Martin, S. J.: Coronary Occlusion With and Without Pain: Analysis of 100 Cases in Which Autopsy was Done with Reference to the Tension Factor in Cardiac Pain, Arch. Int. Med. 62:821 (Nov.) 1938.

2. Boyd, L. J., and Werblow, S. C.: Coronary Thrombosis Without Pain, Am. J. M. Sc. 196:814 (Dec.) 1937.

3. Kennedy, J. A.: The Incidence of Myocardial Infarction Without Pain in 200 Autopsied Cases, Am. Heart J. 14:703 (Dec.) 1937.

4. Martin, S. J., and Gorham, L. W.: Cardiac Pain: An Experimental Study with Reference to the Tension Factor, Arch. Int. Med. 62:860 (Nov.) 1938.

sion alone on the coronary arteries in dogs may serve as an adequate stimulation for the initiation of cardiac pain.

Obviously all discussion of cardiac pain must, at least for the present, remain somewhat speculative, in view of the fact that the mechanisms of the production of pain are as yet but little understood.

HERBAL TREATMENT OF DIABETES

Notwithstanding the tremendous publicity given to the modern scientific treatment of diabetes, reports continue to appear of deaths following discontinuance of insulin by some patient on the recommendation of osteopaths, Christian science healers, naturopaths and herbalists. The London *Lancet* (Oct. 8, 1938, p. 849) recently noted such a case:

> During an inquest last week it was alleged that a herbalist had dissuaded a diabetic patient from receiving insulin treatment. The deceased, a young man of 22, last year developed symptoms which were attributed to diabetes. A doctor prescribed insulin injections and four or five were given. Afterwards the young man's father, according to his own evidence at the inquest, decided that dietetic treatment would meet the case. Having been treated both by a registered medical practitioner and an osteopath, the patient went to Mr. T. H. Wilbraham of Ellesmere-road, Altrincham, a herbalist. The father told the coroner that Mr. Wilbraham said he specialized in the treatment of diabetics and strongly disapproved the use of insulin. The young man's condition, said his father, improved until the beginning of last August. On Sept. 4th a doctor ordered his immediate removal to hospital. He was admitted to a Stockport hospital in a state of coma and died next day. Dr. W. H. Grace, who gave evidence on the pathological side of the case, attributed the coma to the exclusion of insulin. On behalf of Mr. Wilbraham the father was asked in cross-examination whether Mr. Wilbraham had not suggested that, during his treatment, a doctor should administer the correct insulin injections. This the father denied. The coroner's jury returned a verdict of manslaughter, and Mr. Wilbrahan was committed for trial.

Not long ago an article advocating a new herb for the oral, non-insulin treatment of diabetes mellitus appeared in the *Canadian Medical Association Journal* (July 1938, p. 32). Gobind Lal, Hearst science editor, among others, called attention to the article, and thus it was relayed to the general public. Several herbs are known to contain hypoglycemic principles. However, no one with the simplest understanding of the physiology of the pancreas and pathology of diabetes mellitus would ever consider any of them as adequate substitutes for insulin. Incidentally, the article in the Canadian journal referred only to some preliminary experiments on animals and observation of the effects in one human case.

Innumerable investigators continue to seek an oral preparation which will suitably control diabetes. The experiments thus far have not given much promise of success. In the meantime, therefore, physicians may well emphasize constantly the specificity of insulin in the successful management of diabetes. Successful management of the disease with insulin means prolongation of life. Until some preparation equal or superior to insulin is developed, patients must be made to realize the dangers of using any other remedy, particularly any herbal preparation which may be advocated, usually on the basis of avoiding hypodermic injections. Many such preparations have come to the attention of the various Bureaus and Councils of the American Medical Association. The Council on Pharmacy and Chemistry has declared some of them unacceptable,[1] and the Bureau of Investigation has reported an extensive list of unsuccessful remedies for this condition.[2] Premature publication of experimental results may menace the lives of human beings. When such items are exploited by the press, people are led to abandon specific treatment which to them may mean the difference between life and death. While all may earnestly hope for the day when a successful oral treatment of diabetes will become available, today we must exert every effort to educate the victims of this disease in the dangers of abandoning life-saving insulin preparations.

DESTRUCTION OF VITAMIN C IN THE GASTROINTESTINAL TRACT

Sufficient gastrointestinal fermentation of vitamin C may take place in certain persons to cause vitamin deficiency. In connection with this assertion Kendall and Chinn [1] of Northwestern University Medical School suggest a plausible method for the dietary control of this excessive fermentation. The effect of gastrointestinal bacteria on vitamin C (or on synthetic ascorbic acid) has been the subject of much experimental study during recent years. Stepp and Schröder,[2] for example, tested eight strains of Bacillus coli for their destructive action and found but one strain that would utilize ascorbic acid in vitro. Novotel'nov and Vodova [3] tested most of the known species of gastrointestinal bacteria and found none that would destroy vitamin C. The general conclusion [4] drawn from the accumulated evidence is that ability to use ascorbic acid is occasionally shown by certain individuals of known bacterial species but is not a common property of any known species. Kendall and Chinn, however, call attention to the

1. Since the time of its organization in 1905, the Council on Pharmacy and Chemistry has reported unfavorably on a number of proprietary medicinal articles which have been proposed for use in the treatment of diabetes. A list of these preparations follows: Collosin, Filsulina, Globeol, Succinolac, Hemo-Theragin, Chloraz, Intavrin, Diabesan, Blueberry Leaf Extract, Recresol, Salfolestin, Rubetin, Tryptoform, Pancreal Tablets, Insulek Preparations and Antidemon.

2. The Bureau has published hundreds of fake diabetes "cures" and "treatments." Dr. Arthur J. Cramp, in Hygeia for October 1935, discussed or mentioned the following: Amber-in, Banker, Bauer's Antidiabeticum, Boto, Marie Carr Frost, Diabesan, Dia-Bet, Diabeticine, Diabetol, Diabetylin, Diaplex, Diff's Diabetic Mixture, Ekelu, Expargo (Sanal) Anti-Diabetes, Flowering Herb, Insuloid, Jarman Compound, Knoll Treatment, Kolpe'hoe, Korectone, Letone, Lifewe, Meloid, Mal-Tex, Pancretone, Photo-Synthetic Tea, Sal-Sana, Sanborn Treatment, Scheidemann's Shrub Remedy, Uvursin, Vinculin, Vinder Diabetic Wine, Warner's Safe Diabetes Remedy and Wintrop. Since the appearance of that article, the Bureau of Investigation has published reports on the following related subjects which are not mentioned in the article: Linden Ray Emerick, M.D., Carr Laboratories, Sanoxyper Dextone, Spodal Treatment for Diabetes [sic], Diatone and Dekatal Laboratories.

1. Kendall, Arthur Isaac, and Chinn, Herman: J. Infect. Dis. 63: 330 (May-June) 1938.

2. Stepp, W., and Schröder, H.: Klin. Wchnschr. 14: 147 (Feb. 7) 1935.

3. Novotel'nov, N. V., and Vodova, V. A.: Proc. Sc. Inst. Vitamin Research U. S. S. R. 9: 81 (No. 1) 1937; abstr., Chem. Abstr. 31: 8615 (Nov. 20) 1937.

4. von Gagyi, J.: Klin. Wchnschr. 15: 190 (Feb. 6) 1936. von Gagyi, J., and Ujszghy, P., ibid. 15: 793 (May 30) 1936.

fact that routine plating methods used by previous investigators are not well designed to show the real frequency of vitaminolytic variants; so they devised an enrichment method, an ascorbic acid broth in which vitamin C fermenters tend to overgrow nonfermenting variants. After twenty-four hours' growth in this differential medium, ordinary plating methods are used.

The Chicago bacteriologists applied this differential technic to a bacteriologic study of stomach contents from patients with pernicious anemia and from patients with achlorhydria, to feces from babies and adults and to the intestinal contents of guinea pigs. Thirty-four ascorbic acid fermenting strains were isolated, almost every sample tested yielding positive results. Twenty-two of these vitaminolytic strains were classified as Mucosus capsulatus. Within twelve hours a strongly lytic strain may destroy approximately 50 per cent of the vitamin C present in their routine ascorbic acid broth and fully 97.5 per cent by the end of twenty hours. This destruction occurs under both aerobic and anaerobic conditions.

The Northwestern University bacteriologists found that the presence of even small amounts of dextrose (and by inference other simple, readily fermentable sugars) definitely postpones decomposition of ascorbic acid until all the dextrose is hydrolyzed. Since citrus fruits are rich in simple sugars, it would seem probable that these sugars will deflect microbic attack on vitamin C as long as the sugars are present in the digestive tract. Whether or not cane sugar added to fruit will further inhibit vitamin destruction was not tested.

Current Comment

TUBERCULOSIS IN YOUNG WOMEN

Why should tuberculosis be taking a relatively heavier toll from young women than from any other group of the population? Information on this question was obtained by the National Tuberculosis Association[1] through investigation of the homes of all girls and women between 15 and 25 who died from tuberculosis in New York City in 1929 and of a similar group who died in Detroit during 1930. In New York City the number investigated was 678 and in Detroit 180. One of the most striking facts brought out by the study was the relative similarity of the main observations in the two cities in spite of the fact that the tuberculosis death rate among young women was only 83 per hundred thousand in New York City as compared with 138 per hundred thousand in Detroit. The investigation allowed several specific conclusions, among which were that both cities have an appreciable Negro problem, tuberculosis takes the highest toll in late adolescence and early adult life rather than school age, and race, nativity, residence and immigration seem to have no essential relation to the problem, although the variations in racial susceptibility noted in other groups was also evident here. There was no evidence of greater mortality among uneducated than among educated girls. There was no reason to believe that industrialization or any specific occupation was responsible for the unequal ratio between the tuberculosis death rates of this group and others or that increased tuberculosis mortality among young women is due to insufficient clothing, diet, lack of sleep or unusual recreational habits. Although it could not be statistically proved, it is believed that the psychic and physical changes of adolescence and early adult life cause young women to be unusually susceptible to tuberculosis and constitute the fundamental reasons for the high mortality rates which they sustain. A distinct relationship between pregnancy and the onset of tuberculosis was shown. Finally, the report concluded that the symptoms of tuberculosis were often recognized late with consequent delay in securing medical advice and treatment, and that clinic facilities were not widely used or sanatorium care given sufficiently early or consistently. As a result of this study the author believes that the excess tuberculosis in young women is essentially biologic rather than environmental in origin.

1. Nicholson, Edna E.: Tuberculosis Among Young Women, Social Research Series of National Tuberculosis Association No. 7, 1938.

INCIDENCE OF MOTTLED ENAMEL AFTER CHANGE OF WATER SUPPLY

The presence of fluoride in drinking water is responsible for the occurrence of "mottled enamel." Fluoride affects the unerupted tooth rather than the fully developed tooth, thus accounting for the prevalence of the condition in restricted age groups even though all use the same source of drinking water. The incidence of mottled enamel in a locality prominent in the history of this dental condition, Bauxite, Ark., has recently been redetermined[1] ten years after a change in the common water supply from one containing significant amounts of fluoride to one free from this substance. At the time of the first Public Health Service survey in Bauxite, in 1928, 44 per cent of all school children between the ages of 5 and 18 years showed definite evidence of mottled enamel and sixty-one of sixty-three children of this age who were born in Bauxite and had always lived there were affected. The occurrence of dental fluorosis in children of this age group was attributed directly to the fact that the city water supply from 1909 to the date of the early survey was obtained from a deep well the water of which contained significant amounts of fluoride. In 1928 the use of the deep well was discontinued, filtered river water being employed instead. The fluoride content of the latter was found to be negligible. Early this year a new survey of the incidence of mottled enamel in Bauxite school children was made. A decrease in the occurrence of the condition to practically zero was found in those children whose teeth had erupted since the water supply had been changed. These observations are the second recorded successful instance in the United States in which it has been shown that the changing of a water supply from one containing fluoride to one free from this substance can bring about a complete eradication of endemic mottled enamel.

1. Dean, H. T.; McKay, F. S., Elvove, Elias: Mottled Enamel Survey of Bauxite, Ark., Ten Years After a Change in the Common Water Supply, Pub. Health Rep. 53:1736 (Sept. 30) 1938.

ORGANIZATION SECTION

THE SPECIAL GRAND JURY RETURNS INDICTMENTS

The Special Federal Grand Jury, which has been conducting an investigation in Washington, D. C., for more than two months, returned indictments, December 20, charging violation of the Anti-Trust Laws against the American Medical Association, the Medical Society of the District of Columbia, the Harris County (Texas) Medical Society, the Washington (D. C.) Academy of Surgery, and twenty-one individuals. The specific test of applicability of the anti-trust statutes to the medical profession was based on the District of Columbia cooperative, known as Group Health Association, Inc. The indictment charged the defendants with conspiring to "hinder and obstruct Group Health Association, Inc., in obtaining access to hospital facilities for its members." The indictment was signed by Thurman Arnold, Assistant Attorney General of the United States, David A. Pine, United States Attorney for the District of Columbia, and John Henry Lewin, Allan Hart, Douglas B. Maggs and Grant W. Kelleher, special assistants to the Attorney General. According to United Press reports, the indictment charged the defendants with "having combined and conspired together for the purpose of restraining trade in the District of Columbia"; that is to say: "(1) for the purpose of restraining Group Health Association, Inc., in its business of arranging for the provision of medical care and hospitalization to its members and their dependents on a risk-sharing prepayment basis, (2) for the purpose of restraining the members of Group Health Association, Inc. [in Washington], in obtaining, by cooperative efforts, adequate medical care for themselves and their dependents from doctors engaged in group medical practice on a risk-sharing prepayment basis, (3) for the purpose of restraining the doctors serving on the medical staff of said Group Health Association, Inc., in the pursuit of their calling, (4) for the purpose of restraining doctors (not on the medical staff of Group Health Association, Inc.) practicing in the District of Columbia, including the doctors so practicing who are made defendants herein, in the pursuit of their callings, (5) for the purpose of restraining the Washington hospitals in the business of operating such hospitals.

"In so doing, defendants have then and there engaged in an unlawful combination and conspiracy in restraint of trade in and of the District of Columbia, in violation of Section III of the Act of Congress on June 2, 1890, known as the Sherman Anti-Trust Act."

"Plans, understandings and agreements to accomplish the unlawful business herein above described were proposed, discussed and adopted at such meetings" (the indictment apparently refers here to meetings of the Medical Society of the District of Columbia, at which the Group Health Association, Inc., was discussed).

In announcing the decision of the government to press for criminal indictments, Mr. Arnold is reported to have said that such procedures seemed the only method to resolve the issues raised in the situation. The individuals indicted include Dr. Olin West, secretary and general manager of the American Medical Association, Dr. Morris Fishbein, editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Dr. Rosco G. Leland, director of the Bureau of Medical Economics, Dr. William C. Woodward, director of the Bureau of Legal Medicine and Legislation, and Dr. William D. Cutter, secretary of the Council on Medical Education and Hospitals, all from the headquarters of the Association in Chicago. The following remaining individuals named in the indictments are all from the District of Columbia: Drs. Arthur C. Christie, Coursen B. Conklin, James Bayard Gregg Custis, Thomas A. Groover, Robert A. Hooe, Leon A. Martel, Thomas E. Mattingly, Francis X. McGovern, Thomas E. Neill, Edward H. Reede, William M. Sprigg, William J. Stanton, John O. Warfield Jr., Prentiss Willson, Wallace M. Yater and Joseph R. Young.

THE PACIFIC COAST ECONOMIC CONFERENCE

The second Pacific Coast conference was held at Portland, Ore., December 4. The meeting was attended by representatives from California, Idaho, Oregon and Washington.

Organized medicine now finds itself faced with so many problems and so much to consider that every possible method of reaching solutions must be utilized. With expectation that the Pacific states might help one another in solution of similar problems, the first Pacific Coast conference was called in San Francisco last February. Those in attendance were impressed with the unity of needs of organized medicine in the Pacific region and therefore anticipated an even more valuable conference when Charles Sears, president of the Oregon State Medical Society, invited representatives from Arizona, California, Idaho, Nevada and Washington to meet with the Oregon group in Portland.

Such similarity of problems and so many matters of regional interest were brought to light, and so much information was given on activities of neighboring state organizations, that the conference was established as a permanent organization. Henceforth it is to be known as the Pacific States Medical Executives' Conference and will draw its personnel from those in positions of responsibility in state associations of California, Idaho, Montana, Nevada, Oregon, Utah, Washington and Wyoming. The next meeting is scheduled for Seattle.

The conference is not to be a legislative body but is intended only to be mutually advisory and a means of trading ideas for solution of problems confronting state organizations of the Pacific region.

The most interesting feature of the Portland meeting was the discussion by members of the California delegation of plans to be brought before a special meeting of the California house of delegates, December 17. Owing to the importance of the proposals revealed and the fact that they had not yet been officially acted on, the California participants requested that their discussion remain unreported. Official report of the coming meeting of the California house of delegates will reveal the extensive nature of the far-reaching plans proposed for California. Those in attendance at the Portland conference appreciated the opportunity of this preview afforded by the California delegation, and the many questions brought out were evidence of the interest evoked. Next in interest was the discussion of several federal activities in regard to medical care. The first discussion on

these matters came from V. W. Spickard, Seattle, who warned of the attempts of welfare and social departments to obtain administrative authority over funds now appropriated and probably to be appropriated by the federal government in the coming legislative session. It was his thought that such funds, appropriated for furthering health activities, should be administered as far as possible through state boards of health or state health departments. It was suggested that the advantages of such power might be misused by such departments of health as were not in close contact with the aims and purposes of organized medicine. This objection, however, was answered when it was brought out that as a general principle state departments of health are usually more closely attuned to the ideals of organized medicine than are departments of social welfare. All representatives at the conference saw the importance of this suggestion, and a resolution was passed to the effect that each state organization make vigorous effort to have federal funds for health activities controlled by state departments of health rather than by departments of welfare.

As a portion of the discussion on federal funds, the proposals of the federal farm security plans for medical care were discussed. The consensus was that it is possible to handle this type of work only through county and local societies. Since it has been extremely difficult to get the federal administrator to accept any responsibility for statewide plans, it was brought out that the local societies should be cautioned against accepting fee schedules too small to provide adequate service. Fear was expressed that acceptance by one county society of very small fees might be used to influence other societies toward unpractical contracts.

The afternoon session of the conference brought out a discussion of methods of publicizing organization policies and activities to both the medical profession and the lay public. The meeting was closed after discussion by Martzloff of Oregon and Dudley of Washington on malpractice insurance. Oregon's plan of granting monopoly to one insurance carrier was explained in some detail by Martzloff. He stated that cost of insurance to members of the Oregon State Medical Society had by this plan been reduced to unbelievably low figures, suits had markedly diminished in number, and splendid cooperation had been obtained between the insurer and the society. Dudley explained the workings of the Washington state medical defense fund. Those in attendance at the meeting were Charles Sears, president of the Oregon State Medical Society, chairman of the conference; John Fitzgibbon, Portland, Ore., delegate to the American Medical Association; Morris Bridgeman, Portland, secretary, Oregon State Medical Society; Mr. Clyde Foley, executive secretary, Oregon State Medical Society and secretary of the conference; Charles Manlove, hospital executive of Portland; Charles Hunt, Eugene, president-elect, Oregon State Medical Society; Karl Martzloff, Portland, member of the council of the Oregon State Medical Society. Other members of the Council of the Oregon State Medical Society were Leslie Kent, Eugene; Frank Power, Salem, and George Henton, Portland. Ralph A. Fenton, Portland, trustee of the American Medical Association, was also present. Washington was represented by Harry Rhodehamel, Spokane, president of the Washington State Medical Association; V. W. Spickard, Seattle, secretary of the Washington State Medical Association; Mr. Jack Geoffroy, executive secretary, Washington State Medical Association; Ray Zech, Seattle, delegate to the American Medical Association; C. W. Knudson, president, King County Medical Society and Washington Public Health League; H. D. Dudley, Seattle, director of the Medical Defense Fund, and H. L. Hartley, Seattle, assistant editor, *Northwest Medicine*. Idaho was represented by Frank Gibson, Potlatch, president, Idaho State Medical Association, and J. N. Davis, Twin Falls, secretary. The California delegation consisted of George Kress, San Francisco, secretary of the California Medical Association and editor of *California and Western Medicine;* George Reinle, Oakland, and Charles Dukes, Oakland.

OFFICIAL NOTES

WITNESSES BEFORE THE SPECIAL GRAND JURY IN WASHINGTON

The following witnesses are reported to have appeared before the Special Grand Jury in Washington: Dr. William W. Bauer, Chicago, director of the Bureau of Health Education, who presented the documents which had been subpenaed from the American Medical Association headquarters; Mr. Theodore Wiprud, secretary of the Medical Society of the District of Columbia, who presented further documents to the jury, and Dr. Francis X. McGovern, chairman of the executive committee of the Medical Society of the District of Columbia.

RADIO BROADCASTS

The fourth series of programs broadcast in dramatic form portraying fictitious but typical incidents of significance in relation to health by the American Medical Association and the National Broadcasting Company, entitled "Your Health," began Wednesday October 19 and will run consecutively for thirty-six weeks. The program is broadcast each Wednesday over the Blue network of the National Broadcasting Company at 2 p. m. eastern standard time (1 p. m. central standard time, 12 noon mountain time, 11 a. m. Pacific time).[1]

These programs are broadcast on what is known in radio as a sustaining basis; that is, the time is furnished gratis by the radio network and local stations and no revenue is derived from the programs. Therefore, local stations may or may not take the program, at their discretion, except those stations which are owned and operated by the National Broadcasting Company.

1. Owing to program conflicts, there will be no Chicago broadcast of the network program. Instead, a recording of the program will be broadcast over station WENR at 8 p. m. each Wednesday. This recording will be an identical rebroadcast of the network program broadcast earlier the same day.

The next three programs to be broadcast, together with their dates and their topics, are as follows:

December	28.	Good Milk. Good for You.
January	4.	Fool's Gold.
January	11.	Only a Cold!

THE ST. LOUIS SESSION

Application for Space in the Scientific Exhibit Must Be Made by January 5

Attention is drawn to the fact that applications for space in the Scientific Exhibit at the St. Louis Session will close on January 5. Application blanks will be sent on request to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago.

CALIFORNIA APPROVES PLAN FOR MEDICAL CARE

At a special meeting of the house of delegates of the California Medical Association in Los Angeles December 17 a plan to provide medical care to residents of the state at a cost of about $2.50 a month was approved. According to the New York *Times*, patients will select their own doctors and hospitals. Payments will be made on a weekly, monthly or semimonthly basis. Physicians will be paid on a unit basis, the payments graded from single units for minor services to twenty-five or more units for major operations. It is expected to take about six or eight months to put the plan into operation. While the exact cost has not been determined, the estimate is $2.50 a month for each person. No provision for family group insurance was made under the revised final plan. Hospital, medical and surgical attention will be provided and the expense may be lower if 500,000 or more persons participate in the plan.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ADDITIONAL MEDICAL COLLEGE NEWS AND ARTICLES APPEAR IN THE STUDENT SECTION, PAGE 2444.

CALIFORNIA

Changes in Health Officers.—Dr. William A. Clarke has been appointed health officer of Holtville to succeed Dr. Harry B. Graeser. The city of San Mateo has contracted with the county of San Mateo to administer its public health under the county health unit, of which Dr. Charles C. Gans, Redwood City, is health officer. Dr. James A. Warburton has served for many years as health officer of the city.

Annual Surgical Meeting.—The Los Angeles Surgical Society held its annual meeting at the Los Angeles County General Hospital and the Los Angeles County Medical Association Building December 9-10. In addition to clinics the following papers were presented among others:

Dr. John W. Budd Jr., Intraductal Papilloma and Carcinoma of the Breast.
Dr. Rafe C. Chaffin, Surgical Drainage, Special Application of the Suction Principle.
Dr. Alvin G. Foord, Physiologic Changes in the Leukocyte Count.
Dr. Edward C. Pallette, Liver Abscess with Perforation.
Dr. Harold L. Thompson, Mortality of Acute Perforation of Peptic Ulcer.
Drs. George H. Houck and Frank S. Dolley, Amebiasis with Liver Abscess and Spontaneous Bronchial Drainage.

CONNECTICUT

Study of the Human Element in Motor Accidents.—A comprehensive study of the human element in motor vehicle accidents will be made at the Institute of Human Relations of Yale University, New Haven, according to the New York *Times*. Cooperating will be the American Association of Motor Vehicle Administration, which instigated the project, and the Standard Oil Company of New Jersey, which is providing the funds. The association of motor vehicle administrators is composed of state officials who are directly concerned with the regulation of motor vehicles. The state motor vehicle commissioners will give the use of their departments so that research work can be carried on in various states. Complete reports will be made available to the project and the administrators will also furnish assistants to cooperate in individual studies. The association has also appointed a committee to cooperate in the project. The Standard Oil Company will make available its driver records and its safety and motor vehicle operating information.

IDAHO

Hospital News.—A county hospital for Oneida County was recently dedicated at Malad.——PWA funds have been granted for a hospital in Lewis County at Nez Perce. The grant was $8,100, and 55 per cent of the cost of the hospital will come from a bequest from Charles E. Burkhart.——A general hospital is to be built at Grangeville with a PWA grant of $17,286 and $22,000 collected and pledged by the city.

Society News.—Dr. Samuel M. Poindexter, Boise, discussed coronary disease before the Pocatello Medical Society in Pocatello November 23. At this meeting members of the former Upper Snake River Medical Society, including the territory from Rexburg to Ashton, asked for permission to withdraw from the Pocatello society in order to reorganize in their own territory.——Drs. Joseph Melvin Asprey and Norman R. Brown, Spokane, Wash., addressed the North Idaho Medical Society, Lewiston, October 19 on "Newer Developments in the Treatment of Cancer" and "Certain Problems of Treatment of Fractures" respectively. A film on "Typing of Pneumococci and Serum Treatment of Pneumonia" was shown.

ILLINOIS

Dedication of New Buildings at State Hospital.—New buildings at Anna State Hospital, erected during the past five years at a cost of $1,275,121, were dedicated October 15. Mr. A. L. Bowen, director of the state department of public welfare, gave the dedicatory address. The recreation hall in which the ceremonies took place was named in honor of the late Dr. Ralph A. Goodner; other buildings have been named for Drs. W. C. Lence and William L. Athon, former managing officers of the institution. A portrait of Dr. Goodner was unveiled. Funds for remodeling and new buildings were supplied through state appropriation and PWA grants. The Athon and Lence cottages are of the one story "E-type" construction which is standard for state mental hospitals and contain 120 beds each. A 132 bed diagnostic center and hospital is now nearing completion.

Chicago

Society News.—The Chicago Society of Internal Medicine was addressed December 19, among others, by Dr. Louis R. Limarzi and Emil M. Schleicher on "The Reaction of Peripheral Blood and Bone Marrow in Chronic Hemorrhage and in Essential Thrombocytopenic Purpura," and Dr. Carl C. Pfeiffer, "Effect of Analeptic Drugs in Hibernating Ground Squirrels."——Dr. Mabel E. Gardner, Cincinnati, addressed a joint meeting of the Chicago Council of Medical Women and the American Medical Women's Association November 9 on "Medical Women versus War."——At a meeting of the Chicago Roentgen Society November 10 Dr. Paul H. Holinger, among others, discussed "Biplane Fluoroscopy as an Adjunct to Bronchoscopy."——The Chicago Pediatric Society was addressed November 10 by Drs. Harold C. Stuart, Boston, and Mandel Sherman on "The Observation of Growth in Pediatric Practice: Useful Research Contributions" and "Classification and Interpretation of Neurotic and Abnormal Behavior of Children" respectively.——At a meeting of the Chicago Pathological Society November 14 Drs. George J. Rukstinat and Robert J. Hasterlik, among others, spoke on "Congenital Absence of the Penis."

KANSAS

Causes of Death in Kansas.—There were 19,287 deaths recorded in Kansas during 1937. Of this total, 13,797 deaths, or 71 per cent, were the result of the ten leading causes, 7,924 in men and 5,873 in women, according to the *Medical Bulletin* of the Sedgwick County Medical Society. Heart disease continued to lead the causes of death with a total of 3,192 and following, in the order named, are the remainder comprising this group: cancer, accounting for 2,168; cerebral hemorrhage, 1,733; chronic nephritis, 1,590; "all accidents," 1,492; pneumonia, 1,126; diseases of the coronary arteries, 792; influenza (all forms), 686; motor vehicle accidents, 520, and tuberculosis, 498.

Society News.—Dr. Sumner L. S. Koch, Chicago, addressed the Shawnee County Medical Society in Topeka, October 3, on "Surgical Principles in Care of Injuries and Infections of the Hand."——At a meeting of the Bourbon County Medical Society in Fort Scott, October 24, Drs. Caryl R. Ferris and Claude J. Hunt, Kansas City, Mo., discussed "Advances Made in the Treatment of Diabetes" and "Problems in Thyroid Diseases," respectively.——The Marion County Medical Society was addressed in Marion October 25 together with the McPherson and Harvey county medical societies. Dr. Christian A. Hellwig, Wichita, spoke on "Analysis of Causes of Uterine Bleeding After the Age of 40 Years" and Philip W. Morgan, Emporia, "Electrocardiography and the Evaluation of Heart Symptoms."——Dr. Thomas L. Foster, Larned, discussed "New Treatments of Insanity" before the Pawnee County Medical Society in Larned recently.

KENTUCKY

District Meeting.—The Sixth and Seventh Councilor Districts of the Kentucky State Medical Association held a joint meeting in Somerset November 4. The speakers included Drs. Harry S. Andrews, Louisville, "Management of Premature Infants"; Nevil M. Garrett, Brodhead, "Immediate Repair of Perineal Lacerations," and John W. Scott, Lexington, "Common Diseases of the Liver and Gallbladder."

MARYLAND

Expansion of Tuberculosis Activities.—With funds made available by the Maryland Tuberculosis Association, Dr. Raymond Hussey, Baltimore, has been appointed field medical investigator for applicants for admission in state sanatoriums from Baltimore. Provision has been made also for two public health nurses. The board of managers of the state tuberculosis sanatorium commission has felt the need of an improved method of admitting patients. Heretofore applications have been sent directly to the superintendents of the various institutions and admissions were made in the order in which the applications were received. This has not proved

entirely satisfactory. Under the new plan Dr. Hussey will receive all applications from persons living in Baltimore and investigate each case with particular reference to the suitability of the patient for sanatorium care and the need for isolation. Dr. Hussey will visit the patient with or without the family physician and will take the necessary steps for admission without charge to the patient. Buildings now under construction for 200 additional patients will be ready for occupancy Oct. 1, 1939. In addition, the board of managers plans to request the next legislature for funds to provide for an extra 100 beds at Henryton, the sanatorium for colored persons, and to establish a branch hospital for colored patients on the Eastern shore.

MASSACHUSETTS

Departments of Tropical Medicine and Comparative Pathology Merged.—The department of tropical medicine, Harvard University Medical School, Boston, and the department of comparative pathology have been consolidated. The change was effected on the retirement of Dr. Richard P. Strong early this fall as professor of tropical medicine. The combined department is now under the supervision of Dr. Ernest E. Tyzzer, George Fabyan professor of comparative pathology.

Society News.—At a meeting of the Boston Society of Psychiatry and Neurology October 20 the speakers were Drs. Arthur L. Watkins on "The Cerebrospinal Fluid in Retrobulbar Neuritis" and Michael S. Burman, New York, "Observations on Spastic Paralysis and Dystonia Musculorum Deformans." —— Dr. William H. Watters, Boston, addressed the New England Society of Physical Medicine October 19 on "Physical Medicine in Chronic Disease."——At a meeting of the Harvard Medical Society in Boston October 25 Dr. Henry A. Christian, Boston, spoke on "Certain Cardiorenal Circulatory Correlations." ——Dr. George E. Hall, Toronto, discussed "Neurogenic Influences in Experimental Coronary Artery Disease" before the New England Heart Association in Boston October 26.

Director of New Department of Mental Health.—Dr. Clifton T. Perkins, acting commissioner, state department of mental diseases, has been appointed commissioner of the new state department of mental health and Dr. Bardwell H. Flower, assistant superintendent of the Grafton State Hospital, was appointed assistant commissioner. The department is the outgrowth of a recent reorganization of the state department of mental diseases, of which Dr. David L. Williams was the former commissioner. The law authorizing the change was enacted July 7. Dr. Perkins graduated at the Boston University School of Medicine in 1926. Subsequently he served on the staff of the Worcester State Hospital, as assistant to the commissioner of mental diseases, assistant commissioner and acting commissioner, and as a member of the faculty in the department of psychiatry in his alma mater.

MICHIGAN

Society News.—Dr. Leo G. Rigler, Minneapolis, addressed the Calhoun County Medical Society in Battle Creek November 1 on "X-Ray Diagnosis of Acute Abdominal Conditions." ——A symposium on the serum treatment of pneumonia was presented before the Washtenaw County Medical Society, Ann Arbor, November 8, by Drs. Abbott B. Mitchell, Lansing, Cyrus C. Sturgis, Herman H. Riecker and Dorman E. Lichty, Ann Arbor.——Dr. Frank A. Kelly, Detroit, discussed "Injection Treatment of Hernia" before the Genesee County Medical Society in Flint November 2. Dr. Douglas Donald, Detroit, discussed "Pitfalls in Diagnosis of Coronary Thrombosis" before this society in Flint November 16.——Dr. Frederick H. Falls, Chicago, addressed the Kalamazoo Academy of Medicine November 15 on "Early Recognition and Treatment of Cancer of the Cervix and Uterus."

Home for Convalescent Girls.—A home for convalescent girls in Detroit, the first in the state, has been established by Dr. B. Raymond Hoobler, emeritus professor of pediatrics, Wayne University College of Medicine, as a memorial to his wife, the late Madge Sibley Hoobler. Organized as a nonprofit corporation, the Hoobler Guest House, with accommodations for twenty-five persons, was dedicated November 27. If the girl is under the care of a physician, she obtains his permission to go to the guest house. All admissions are made through Alice M. Walker, head of social service at Harper Hospital. When admitted, a girl may spend as much as two weeks without cost in an atmosphere of quiet refinement and healthful living. The guest house is the outcome of a wish expressed by the late Mrs. Hoobler, who intended to dedicate it to her mother. According to the Detroit *Free Press*, Dr. Hoobler plans to make the present house the first of several in Detroit.

MINNESOTA

Program of Health Education.—A coordinated program of health education, working through a committee representing interested agencies, is under way in Minnesota. A special topic will be chosen each month for discussion by hospital staffs and local societies, while the state medical society and the state board of health will send out bulletin information. The motion pictures, radio and weekly news services of the state society and other public health agencies will be utilized in disseminating information to the public. A tentative list of topics has been announced: January, pneumonia; February, pediatrics; March, degenerative and circulatory diseases; April, cancer; May, obstetrics and gynecology; September, traumatic surgery; October, syphilis and gonorrhea; November, tuberculosis and respiratory diseases, and December, anemias and deficiency diseases.

MISSOURI

Hospital News.—Construction on a new state trachoma hospital on a three acre site adjoining the city of Rolla started November 29. Citizens of Rolla donated the property, and the $75,000 appropriated by the state legislature will be supplemented by a federal grant of $63,000.

Society News.—The Jackson County Medical Society has revised its charter and by-laws, effective January 1. The first election to be held under the new laws, however, will be held in 1940.——The Wyandotte County Medical Society was addressed in Kansas City November 15 by Dr. William Walter Wasson, Denver, on "The Anatomy, Physiology and Mechanics of the Chest as the Basis for Study and Classification of Diseases of the Chest."

NEBRASKA

District Meetings.—At the annual meeting of the Seventh Councilor District Medical Society in Superior October 20 the speakers were Drs. Robert J. Stearns, Omaha, diseases of the cervix, exclusive of those secondary to birth injuries; Harold S. Morgan, Lincoln, "Etiology and Symptomatology of Injuries of the Birth Canal Due to Birth Injuries," and Maurice E. Grier, "Treatment of Injuries of the Birth Canal Due to Birth Injuries."——The Sixth Councilor District of the Nebraska State Medical Association met in Wahoo November 14 with the following speakers: Drs. Arthur L. Miller, Kimball, president-elect of the state association, on "Medicine of Tomorrow"; Herman F. Johnson, Omaha, "Treatment of Fractures of the Upper Extremities," and James E. M. Thomson, Lincoln, who presented a motion picture on "Fractures of the Spine."

NEW JERSEY

Personal.—Dr. Earl S. Hallinger, Camden, was elected secretary of the State Board of Medical Examiners November 16 to succeed the late Dr. James J. McGuire.

Thirty-Four Aliens Pass State Examinations.—Thirty-four physicians who are refugees from various European countries passed a recent examination for licenses to practice in New Jersey, it is reported. They received six year licenses, which will continue in force if they become citizens within the period; otherwise the licenses will be automatically annulled. Twelve refugee candidates failed, according to the report. Forty-five of a class of fifty-eight citizens passed the examination.

Society News.—Dr. William Seaman Bainbridge, New York, addressed the Camden County Medical Society, Camden, December 6 on "The Cancer Problem of Today," with Dr. William Wayne Babcock, Philadelphia, as commentator. ——Dr. Oswald S. Lowsley, New York, addressed the Academy of Medicine of Northern New Jersey, Newark, December 15, on "Some New Operative Procedures in Urology."——Col. Jay W. Grissinger, surgeon, Second Corps Area, U. S. Army, and Capt. Charles M. Oman, senior medical officer, Third Naval District, U. S. Navy, addressed the Essex County Medical Society, Newark, December 8, on "The Medical Profession in Relation to Military Preparedness."——Drs. John B. Flick, Philadelphia, and Berthold S. Pollak, Secaucus, addressed the Atlantic County Medical Society, Atlantic City, December 9, on surgical and medical treatment, respectively, of pulmonary tuberculosis.—— Dr. Byron P. Stookey, New

York, addressed the Bergen County Medical Society, Hackensack December 13 on "Recent Developments in the Diagnosis and Treatment of Low Back Pains and Sciatica with Special Reference to Herniations of the Nucleus Pulposus."——Dr. Harvey F. Doe, Montclair, discussed the state program on pneumonia at a meeting of the Hudson County Medical Society, Jersey City, November 1. A film on serum treatment was shown.

NEW YORK

Obstetric Institute in Syracuse.—An obstetric institute sponsored by the maternal welfare committee of the Onondaga County Medical Society was presented at the Syracuse University College of Medicine December 8. Among the subjects discussed were the use of sulfanilamide, use and interpretation of the Friedman test, home delivery technic, anesthesia and danger signals during labor. At a luncheon meeting Dr. Herman G. Weiskotten, dean of the medical school, spoke on opportunities for graduate studies in obstetrics.

New York City

Examinations for Physicians.—The Municipal Civil Service Commission announces an examination to be held for physicians in the department of correction. There are four vacancies for women in the House of Detention and six for men at Rikers Island. The salary ranges from $1,360 to $1,800 a year. Full time service is required, with maintenance in certain cases. Candidates must be graduates of reputable medical schools and must have one year's experience as intern in a hospital of recognized standing or equivalent medical experience. They must be licensed to practice in New York before certification. Applications will be received up to Wednesday December 28.

Medical Equipment for World's Fair.—An automobile x-ray unit has been built for the medical division of the New York World's Fair. With the mobile unit the eight first aid stations will be provided with immediate x-ray service, especially in cases of suspected fractures or other internal injuries. Plates will be developed in the darkroom in the automobile, which is equipped with a dry ice device to keep the developer chemicals at the maximum level of efficiency. A special ambulance is being prepared for the work of the "division of pneumatology," which will have charge of administering gases at first aid stations and at two resuscitation centers. The ambulance will be fitted with modern equipment for care of all kinds of asphyxial accidents, such as asphyxiation from gas, submersion and fire fighting.

Society News.—Dr. Malcolm Goodridge was elected president of the New York Academy of Medicine for a two year term, succeeding Dr. James Alexander Miller. Dr. Rufus I. Cole, Mount Kisco, was elected vice president for three years and Dr. Bernard Sachs was made treasurer for three years.——The Physicians' Square Club of Greater New York held its one hundred and fiftieth dinner December 14 at the Hotel Westover. Dr. A. Bern Hirsh, editor of *New York Medical Week*, was the guest speaker on "Fifty Years in Medicine and Masonry."——A symposium on endocrinology was presented at the first fall meeting of the International Spanish Speaking Association of Physicians November 30 by Drs. James R. Goodall, Montreal, Canada; William F. Rienhoff Jr., Baltimore, and Murray B. Gordon, New York.

Gifts to Columbia.—Columbia University has received $403,792.59 in cash gifts for medical purposes within recent months. Among the most important are the following:

Rockefeller Foundation, $111,750; of this $100,000 is to be for research in neurology over a five year period, $7,000 for research on constitutional aspects of disease, $2,750 for studies on the common cold and $2,000 for research in chemical embryology.

Carnegie Corporation of New York, $64,460; of this $50,000 is for endowment of the program for graduate medicine, $8,260 for chemical research in the department of biologic chemistry and $1,500 for research on deficiency diseases in certain animals.

John and Mary R. Markle Foundation, $54,800; of this $24,600 is for cancer research at the Institute of Cancer Research on biologic effects of radiation.

Josiah Macy Jr. Foundation, $26,260 for various departments.

An anonymous donor, $20,000 for research at the Institute of Cancer Research.

William J. Matheson Foundation, $2,400 for the Matheson Encephalitis Fund in the department of bacteriology.

Philip Morris and Company, $2,000 for research in pharmacology.

Hospital Council Formed.—The Hospital Council of Greater New York was formed at a meeting of various agencies November 10. It supersedes the Hospital Council of the City of New York formed in 1935, according to the New York *Times*. The council will be composed of seventeen organizations. They include the Coordinating Council of the Five County Medical Societies of New York City, New York Academy of Medicine, United Hospital Fund, Merchants Association of New York and New York Board of Trade besides welfare, civic and religious groups and the city of New York. Its aim is to "improve and coordinate the services of hospitals and related health agencies" and to "plan the economical and efficient development of these services in relation to community needs." A planning committee of twenty-nine members will be in charge of the council's program.

OHIO

Postgraduate Day in Akron.—Three Cincinnati physicians provided the program of the Summit County Medical Society's seventh annual Postgraduate Day November 16. Dr. Max M. Zinninger spoke on "Surgical Lesions of the Stomach and Duodenum" and "Diagnosis and Surgical Treatment of Diseases of the Gallbladder and Bile Ducts"; Dr. Marion A. Blankenhorn, "Serum Treatment of Lobar Pneumonia" and "Bacterial Endocarditis"; John A. Caldwell, "Fractures of the Humerus" and "Fetish Worship in the Treatment of Fractures."

District Meeting.—The Ninth Councilor District of the Ohio State Medical Association held a meeting in Ironton November 16. Dr. Parke G. Smith, Cincinnati, president-elect of the state association, spoke on economic problems of the profession and Mr. Charles S. Nelson, Columbus, executive secretary, on organization matters. The scientific program was as follows: Drs. George W. Crile, Cleveland, on "Surgical Treatment of Hypertension"; Julian E. Benjamin, Cincinnati, "Functional Heart Tests," and Jonathan Forman, Columbus, "Allergy in Everyday Practice."

OKLAHOMA

Society News.—At a meeting of the Carter County Medical Society in Ardmore October 17 the speakers were Drs. Leonard S. Willour, McAlester, on fractures; Glenn J. Collins, McAlester, the electrocardiograph as an aid in diagnosis, and Lyman C. Veazey, Ardmore, psychiatry in medicine.——Drs. Henry H. Turner and William M. Taylor, Oklahoma City, addressed a joint meeting of the Grady, Stephens and Caddo county medical societies recently at Anadarko on "Practical Endocrinology" and "Acute Respiratory Diseases of Childhood" respectively.——Drs. Carroll M. Pounders and George H. Garrison, Oklahoma City, addressed the Garfield County Medical Society, Enid, November 30, on "Juvenile Rheumatism" and "The Present Status of Poliomyelitis—Its Early Diagnosis and Treatment" respectively.

OREGON

Pacific Coast Medical Conference.—The Oregon State Medical Society was host December 4 to a conference of state medical societies of the Far West in Portland. The Idaho, Nevada, Arizona, California and Washington associations were invited. Among topics discussed were methods of publicizing organization activities and policies, medical care of low wage groups, Farm Security Administration plans for medical care, industrial commission contracts with hospital associations and other corporations, the American Medical Association survey, graduate instruction, malpractice insurance, cooperation with other groups, legislative organization and technic.

PENNSYLVANIA

Graduate Assembly in Danville.—The first graduate assembly of the year under the auspices of the Montour County Medical Society was held at Geisinger Hospital, Danville, November 18. The guests were Drs. Eugene F. Du Bois, New York, who spoke on "Temperature Regulation and Fever"; Charles C. Higgins, Cleveland, on "Renal Calculi—Etiology, Diagnosis and Treatment," and James H. Means, Boston, who conducted a clinic on heart disease. Dr. David W. Thomas, Lock Haven, president of the Medical Society of the State of Pennsylvania, spoke at a luncheon on "Postgraduate Seminars in Pennsylvania."

Philadelphia

Alumni Seminar for Pharmacists.—The Philadelphia College of Pharmacy and Science has announced plans for a three day seminar for practicing pharmacists to give them a review of the latest developments in pharmacy, chemistry, bacteriology and biology. The dates are January 30 to February 1 during the midterm recess of the college. Subjects on the program for the lectures and demonstrations include dispensing of the new chemotherapeutic agents; demonstrations in physicochemical methods; endocrines, vitamins and hormones; the newer biologicals, and where to go for information on scientific prob-

lems. Any pharmacist, graduate of a recognized college of pharmacy, is eligible for enrolment. Full information may be obtained from John E. Kramer, B.Sc., registrar, Philadelphia College of Pharmacy and Science.

Society News.—Dr. Philip D. McMaster, New York, addressed the Pathological Society of Philadelphia November 10 on "Skin Lymphatic and Lymph Flow in Health and Disease" and Dr. Stanley P. Reimann and Mr. Barnard J. Miller, on "The Parthenogenic Extrusion of Polar Bodies from an Unfertilized Human Ovum."——At a meeting of the Northern Medical Association of Philadelphia November 21 the speakers were Drs. Leslie N. Gay, Baltimore, on "Complications of Bronchial Asthma and Their Treatment"; Aaron Brown, New York, "Pollen Desensitization and Its Complications," and Matthew S. Ersner, "Indications and Contraindications of Rhinologic Regimen and Surgical Intervention in Bronchial Asthma."——Dr. Edgar G. Ballenger, Atlanta, Ga., addressed the Philadelphia Urological Society November 28 on "Persistent Gonococcal and Other Infections."——Drs. Charles Mazer and George Baer, among others, addressed the Obstetrical Society of Philadelphia December 1 on "Therapeutic Value of Low-Dosage Irradiation of the Pituitary Gland and Ovaries in Functional Menstrual Disorders and Sterility."

SOUTH CAROLINA

Society News.—South Carolina members of the South Atlantic Association of Obstetricians and Gynecologists held a meeting in Columbia November 5 with the committee on maternal welfare of the South Carolina Medical Association. Dr. Joseph Decherd Guess, Greenville, made an address on "The Problem of the Occiput Posterior Position" and Dr. John M. Fleming, Spartanburg, presented a paper on "Endometriosis of the Round Ligament." Motion pictures dealing with the investigation of sterility and with vaginal hysterectomy were shown.——Dr. Foster M. Routh, Columbia, addressed the Ridge Medical Society in Batesburg recently on allergy.——Dr. George H. Bunch, Columbia, discussed appendicitis at a meeting of the Coastal Medical Society in Walterboro October 27.

TEXAS

Society News.—Dr. Charles T. Stone, Galveston, addressed the Bexar County Medical Society, San Antonio, October 6 on "The Physiologic Basis for the Treatment of Peptic Ulcer."——Drs. Sidney J. Wilson and Truman C. Terrell, Fort Worth, addressed the Tarrant County Medical Society, Fort Worth, October 4, on "Treatment of Mycosis Fungoides" and "A Comparative Study of Foille with Tannic Acid and Tannic Acid Preparations in the Treatment of Burns" respectively.——Drs. Carl Kaufman and Sam V. Granata, Beaumont, addressed the Jasper-Newton Counties Medical Society, Kirbyville, November 16, on asthma and allergy.——A symposium on fractures was presented before the Dallas County Medical Society November 10 by Drs. Charles F. Clayton, Fort Worth; James S. Speed, Memphis, Tenn., and Charles S. Venable, San Antonio.

WEST VIRGINIA

State Health Conference.—Dr. Edwin Cameron, Morgantown, was elected president of the West Virginia Public Health Association at the annual conference in Bluefield October 31-November 2. Drs. Bruce H. Pollock, New Cumberland, and Claude A. Thomas, Martinsburg, were elected vice presidents. Among the speakers were Miss Katherine Lenroot, chief of the Children's Bureau, Washington, D. C.; Dr. Goldsborough Foard McGinnes, director of the bureau of communicable diseases, state department of health of Virginia, Richmond, and Dr. Mark V. Ziegler of the U. S. Public Health Service, Washington, D. C.

WISCONSIN

Dr. Sleyster Guest of Honor.—The Medical Society of Milwaukee County and the Woman's Auxiliary held their annual dinner meeting December 8 at the Milwaukee Athletic Club with Dr. Rock Sleyster, Wauwatosa, President-Elect of the American Medical Association, guest of honor. Dr. Ernest E. Irons, clinical professor of medicine, Rush Medical College, Chicago, was the guest speaker and his subject "The Last Illness of Sir Joshua Reynolds."

State Tuberculosis Meeting.—The thirtieth annual meeting of the Wisconsin Antituberculosis Association was held in Milwaukee October 27-29. Dr. Frank J. Hirschboeck, Duluth, Minn., was the principal speaker at a medical meeting and clinic Thursday evening. The annual dinner was held Friday evening with Dr. Rock Sleyster, Wauwatosa, President-Elect of the American Medical Association, as toastmaster. At a health education meeting Saturday the speakers were Dr. Paul A. Teschner, Chicago, assistant director, Bureau of Health Education, American Medical Association, on "Who Shall Teach?" and Dr. Amelia T. Wood, Muncie, Ind., "What Shall Be Taught?"

GENERAL

Social Hygiene Day.—February 1 has been named as the date for the third observance of National Social Hygiene Day. An anonymous gift of $15,000 for the $500,000 fund sought by the National Anti-Syphilis Committee of the American Social Hygiene Association was recently announced. This brings the fund to $187,065. The association has formulated an eight point program including plans to organize more local and state committees to fight gonorrhea and syphilis, encourage passage of laws for prevention of syphilis, fight prostitution and medical quackery, aid employers and employees against the economic losses caused by these diseases, extend information on social hygiene to the youth of America, expand the personal advisory and consultation service, guide parents, teachers and pastors in sound principles of sex education of youth, and continue observations and reports to citizens regarding official programs. "Guard Against Syphilis" has been chosen as the slogan for the 1939 observance of National Social Hygiene Day.

New Prize for Vitamin Research.—To promote interest in research on the water-soluble "B-complex" vitamins, Mead Johnson and Company, Evansville, Ind., has established an annual award of $1,000 to be presented over a period of five years through the American Institute of Nutrition. A committee of members of the institute will select the recipient, and the presentation will be made a feature of its annual meeting each spring. The award will be given to the laboratory (nonclinical) or clinical research worker in the United States or Canada who in the opinion of the judges has published during the previous calendar year the most meritorious report dealing with the B-complex vitamins. If circumstances and justice dictate, the prize may be divided among two or more persons or it may be given to a worker for valuable contributions over an extended period, but not necessarily representative of a given year. Nominations may be sent at any time to Leonard A. Maynard, Ph.D., Laboratory of Animal Nutrition, Cornell University, Ithaca, N. Y. To be considered for the award at any given spring meeting, the nomination must be received by January 15.

Medical Activities of the Red Cross.—Important features of the activities of the American Red Cross during the past year, according to the annual report, were pellagra control, volunteer blood donor service, oral hygiene and venereal disease control. Red Cross public health nurses made 1,043,954 field visits, 214,398 of them on behalf of mothers and infants, during the fiscal year ended June 30. Each year the number of certificates issued for courses in home hygiene and care of the sick increases; the total number since the first awards in 1914 is 951,639. To prepare teachers for these courses, ninety-five institutes were held last year; nine colleges now give summer teacher training courses for this work. At the end of the third year of the highway emergency first aid program 2,454 stations had been established. Rigid inspection of these stations is maintained, the report says, and those not meeting the standards are withdrawn. Seventy-two agreements have been made with cooperating organizations designating 2,051 pieces of highway equipment as mobile first aid units. This was also the third year of the program of home and farm accident prevention. This activity has become an integral part of the Junior Red Cross program and has stimulated concern about accidents in school environments as well. Expenditures for the fiscal year amounted to $10,358,566.21 and the resources as of July 1 to $14,514,902.38. The year was marked by the death of Admiral Cary T. Grayson, the chairman, and appointment of Mr. Norman H. Davis to succeed him.

CORRECTION

Pathology of Rheumatoid Arthritis.—In the abstracts of the meeting of the American Rheumatism Association, in the discussion given by Dr. D. Murray Angevine on page 2042 of the November 26 issue, the sentence reading "I trust that we have not given the impression that we feel certain that there is an atypical pathologic picture for rheumatoid arthritis" should have been "I trust that we have not given the impression that we feel certain that there is a typical pathologic picture for rheumatoid arthritis."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 26, 1938.

Medicine and Penal Reform

The criminal justice bill, which has been introduced in the House of Commons by the government, marks a big advance in dealing with young offenders. Institutions to be called "remand centers" are to be provided, to which such offenders when remanded or committed for trial in custody are to be sent instead of to prison. There will also be "remand homes" for problem children and persons under 17 who require medical observation. Offenders between 16 and 21 whose offenses justify a period of Borstal training are to go to institutions called Howard homes, which will exercise a system of residential control, but they will be able to go out to their ordinary employment. There will also be public hostels for young persons who ought to be sent away for a time from their homes or from places where they have fallen into bad associations. Another interesting experiment is the establishment of "compulsory attendance centers," where young persons sentenced for minor offenses may be sent and avoid imprisonment. They will be required to attend during half holidays or in the evening after work.

Another most important reform is abolition of the power of the courts to pass sentences of corporal punishment, which is reserved for serious prison offenses. Others are two new types of prison sentences, corrective training and preventive detention. The former will be for not less than two or more than four years for persons between 21 and 30 whose records make such sentences expedient. Preventive detention is for persons over 30 whose records make this necessary for the protection of the public. Such sentences may range from four to ten years. The Broadmoor institution for criminal lunatics is to be transferred to the management of the board of control, the body which controls the administration of mental hospitals.

This bill, which is the latest development of the modern tendency to make the criminal law more humane by helping to reform instead of simply punishing the offender, does not touch the vexed question of criminal responsibility. The tendency of psychiatrists to regard crime as a form of mental disease is by no means shared by judges and lawyers. At a meeting of the Hunterian Society, the psychiatrist Dr. Henry Yellowlees opened a discussion on the thesis that the psychologic treatment of the criminal is preferable to the punishment of the crime. He said that our penal system was becoming less vindictive, more reformative and more humane. Society was beginning to recognize its duty to the criminal. The highest expression of that duty lay in regarding him as a mentally sick man. Many an antisocial act was committed under the pressure of an irresistible psychologic force, all the more terrible in that it was not consciously realized. But psychotherapy could not be applied to the whole criminal picture indiscriminately. Some criminals it could not help; it was a failure in the absence of sincere, willing and persistent cooperation of the patient. It was the duty of the law to decide what criminals would respond to the appeal of psychotherapy, but its criteria of criminal responsibility in cases of glaring insanity showed how unqualified it was to decide the matter.

In the discussion, lawyers took part. While they admitted that it would be better for many prisoners to be treated psychologically, that did not mean that they should be sent to a hospital and not to prison. The fear of prison was a valuable deterrent. One claimed that Dr. Yellowlees had killed his own motion. Psychology, he said, had been described as a science in its infancy, but it was in a prenatal stage, with little prospect of live birth. It had created a terminology and called it a science. The motion was carried by a large majority.

THE SOCIAL RELATIONS OF SCIENCE

The formation of an organization to study the social relations of science is proposed in the periodical *Nature*. Forty scientists, including Sir William Bragg (president of the Royal Society), Sir John Russell (director of the Rohamsted Agricultural Station), Sir F. Gowland Hopkins (professor of biochemistry, Cambridge), Prof. J. B. S. Haldane, Julian Huxley, H. G. Wells, and representatives of sociology, economics and psychology, comment on the need to go deeper into the repercussions which science has had on social development. From the platform of the British Association for the Advancement of Science, speakers have repeatedly urged the need for a scientific survey of the problems which confront civilization, problems largely the result of the discoveries of scientific workers. The American Association for the Advancement of Science officially expressed concern that "science and its applications are not only transforming the physical and mental environment of men but are adding greatly to the complexities of the social, economic and political relations among them." One of its reprcsentatives is coming over to discuss with the British association the problem of joint action. The International Council of Scientific Unions set up last year a committee to survey the influence of science on the world picture as well as on the material side of human life and society.

Julian Huxley asks "What research is being done in Great Britain, under what conditions and how financed? Why are some branches relatively neglected? What are the trends of research and its practical and social effects?" He visualizes an organization which would supply authoritative information. A code of ethics for scientific men is envisaged by Prof. A. V. Hill, secretary of the Royal Society. Secrecy in research, the patenting of discoveries of public value, advertisement, expert evidence, the exploiting of dangerous knowledge or the selling of dangerous drugs could form the subject matter of such a code.

PARIS

(From Our Regular Correspondent)

Nov. 26, 1938.

Routine Preoperative Roentgenograms of the Chest

X-ray examination of the chest is employed as a routine in France in the examination of army and navy recruits, medical students, pupil nurses and applicants for government and private employment. This method of examination is simple and should be used in the evaluation of the risk of operative procedures in all hospital services. Professor Sergent of Paris has called attention to the danger of operation when there is pulmonary tuberculosis, and Bezançon and Jacquelin have studied the effect of operations in lighting up latent tuberculous foci in the lungs. A team composed of Professor Gosset, surgeon, Professor Etienne Bernard, phthisiologist, and Professor Ledoux-Lebard, radiologist, decided to examine all patients preoperatively, and the results of eleven instructive observations were submitted at the October 4 meeting of the Académie de médecine. Four of the operations were performed as emergencies and preoperative x-ray examination of the chest was not carried out. The later appearance of fever, cough and expectoration led to such examination after operation. In all four cases there were found advanced tuberculous lesions which had shown evidence of exacerbation after the anesthesia. In five cases preoperative x-ray examination revealed pathologic changes in one or both lungs. In one of these the presence of infiltration at one apex led to postponement of the operation until the pulmonary lesions had

improved. Operation was performed in one with local anesthesia and in one with spinal anesthesia without any ill effects, but in a third, in which general anesthesia was used, there was a marked rise in the temperature after operation and smears of expectorated material showed tubercle bacilli. In the tenth case there was some doubt before operation as to the existence of a pulmonary focus and general anesthesia was employed; it was followed by a marked exacerbation of a latent tuberculous lesion. In the eleventh case the preoperative x-ray examination failed to reveal any pulmonary focus but after operation the presence of a high temperature led to x-ray examination and bacteriologic examination of the sputum, which revealed an infiltration of the base of the right lung and the presence of tubercle bacilli.

The authors said that all patients should be subjected to x-ray examination of the chest as a routine part of the preoperative examination. If a definite focus is found, it is advisable to employ either local or spinal anesthesia or any general anesthetic other than ether. These precautions hold true for emergency operations.

In the discussion Professor Sergent emphasized that, although there are tuberculous foci which are not detected by the ordinary methods of physical diagnosis, there exist lesions which escape detection by x-ray examination. Hence both methods should be employed.

Professor Laubry said that he would enlarge the field of preoperative x-ray examination to include an examination of the heart and large vessels.

Action of Sulfanilamide-Pyridine on the Pneumococcus

The many advantages of sulfanilamide-pyridine over the older sulfanilamide was the subject of a paper by Dr. Raymond Benda read at the October 21 meeting of the Société médicale des hôpitaux of Paris. Dr. Benda stated that the newer preparation is far less toxic and that in 151 cases no cyanosis of the lips or nails had been noted. The only ill effects were anorexia, nausea and headache in one case. Dr. Benda reported five cases of pneumococcic infection in which sulfanilamide-pyridine had been given. The temperature of a patient aged 74 with a large area of consolidation became normal and the physical evidence of pulmonary involvement disappeared within forty-eight hours after the administration of 3 Gm. of sulfanilamide-pyridine. In another case both this drug and sulfanilamide had been given at intervals of several weeks, so that their action could be compared. The patient was a man 44 years of age suffering from a pulmonary abscess of pneumococcic origin. During the fourth week a daily dose of 3 Gm. of sulfanilamide had been given for five days without any improvement in the patient's condition. Dr. Benda saw him for the first time twelve days later and advised administration of 3 Gm. of sulfanilamide-pyridine. This was followed by a sharp drop in the temperature, which persisted for five days, but it was necessary to discontinue administration of the drug because of persistent nausea. The temperature rose again and remained up until the sulfanilamide-pyridine was given again twenty days later. After a second drop in the temperature to normal, the general condition improved to such an extent that operative intervention could be undertaken.

Streptococcic Empyema Cured by Sulfanilamide

At the same meeting three French naval surgeons, Drs. Germain, le Gallou and Morvan, reported a case of pleurisy on the right side involving the mediastinal aspect of the pleura and complicated by empyema due to the hemolytic streptococcus. Cure without operative intervention followed the use of sulfanilamide by mouth and intramuscular injection combined with evacuation of the pus by repeated punctures and injection of the drug into the pleural cavity.

BERLIN

(From Our Regular Correspondent)

Nov. 15, 1938.

Congress of the European Society of Mental Hygiene

The Congress of the European Society of Mental Hygiene was held at Munich late in August under the auspices of the German Committee for Mental Hygiene, a branch of the Society of German Neurologists. Professor Rüdin of Munich presided. The mental hygiene movement is recognized to have originated in America, to have slowly gained headway in other countries after 1905 and to have spread much more rapidly since the World War. The German Association for Mental Hygiene was founded in 1925; it was superseded in 1935 by the mentioned committee. In recent years the latter has stressed the problems of eugenics in conformity with the German national attitude.

Even at this congress of the European organization the first theme of discussion was "The Eugenic Marriage," introduced by Morgenthaler of Berne and Chairman Rüdin. Morgenthaler spoke on the selection of the marriage partner. In his opinion, every healthy person should marry. Conversely, he opposes the marriage of a person who may be classed as incurably a member of one of the following groups: the feebleminded, the insane, excessively egocentric psychopaths, degenerate hysteriacs, drug addicts, homosexuals and manifest schizoids. He also is against the marriage of persons unsuited for a tranquil married life because of abnormal agressiveness, passivity or introversion. More attention should be paid to those persons who, although basically fit for marriage, remain single because of timidity and similar psychic factors. The ministrations of a well regulated matrimonial agency should be of optimal service to this group. The youth should be definitely trained for marriage, and individual advice is desirable.

Rüdin lectured from the standpoint of the eugenic condition and hereditary endowment of the population as a whole. He pointed out that it is the first duty of a family physician who is schooled in eugenics to try to prevent all genetically and nationally undesirable mesalliances. In addition, social intercourse among boys and girls of families presenting hereditary defects and poor hereditary endowment should be deliberately discouraged. The theory that degenerate families can be "regenerated" by union with eugenically healthier persons is today looked on as unmoral and obsolete. It is difficult to make decisions with regard to persons who, although themselves free of hereditary defects, are possessed of tainted kindred. Here one is confronted with one of the most burning questions of genetic research, the heterozygote problem. Diagnostic possibilities as well as statistical data fail here.

In the discussion the importance of eugenics propaganda was ardently championed by two Italians, whereas Repond, a Swiss, urged that decisions with regard to marriage should be made with caution, since the civilized nations of the West have yet to hit on a generally acceptable "formula of marriage." Former Hamburg psychiatrist Weygandt, on the other hand, voiced the opinion that objectives such as the improvement and purification of hereditary characters cannot be attained without the use of force.

At the second session the problem of "Prophylaxis of Drug Addiction" was taken up. Stanojewitsch of Belgrade stated that addiction to narcotics is not an important problem in Yugoslavia. Russian immigrants are largely responsible for an increase in alcoholism as well as morphinism and cocainism since the World War. Drunkenness is extremely rare among the country's Jewish population. Pohlisch of Bonn discussed the results of modern genetic and constitutional research studies of addicts. He disparaged the "Jewish psychology systems" of Freud and Adler, which attempt to place the responsibility

for the production of addiction on environmentally conditioned injuries to the psyche. He also accused these schools of working mischief by an arbitrary use of the terms "rausch" and "sucht," which tends to obscure and confuse heterogenic concepts. Conversely, research of recent years, based on natural scientific methods, has elicited proof that the circumstances and essential etiologic factors in cases of addiction should be looked for in the domain of endogenic, congenital, psychosomatic hereditary defects. The abnormal familial background of addicts is a matter of voluminous, statistical record of grave congenital defects. Numerous other factors ought not of course to be ignored. Also of interest are the racial-biologic differences which underlie the predilection of various peoples for particular addictions. Because of drastic legal restriction, addiction to opiates has become rather unimportant in Germany. The misuse of hypnotic drugs, on the contrary, should be a serious consideration of the medical profession.

In conclusion Panse spoke on hygienic and legislative measures against drug addiction, and Crime Commissioner Thomas, director of the National Antinarcotic Police Center, described various international measures in this field.

In the general discussion, mention was made of the great decrease in alcoholism in Italy. Fahreddin Kerim Gökay of Istanbul told of the Turkish government's campaign against addiction to drugs. This campaign is all the more noteworthy because these alkaloids represent a source of government income which should not be underestimated. In southern and western Anatolia hasheesh is the usual drug; in Istanbul it is heroin. Morphine and cocaine play minor parts.

Other reports dealt with child psychiatry and child psychology and the importance of occupational therapy in the treatment of mental and bodily illness.

The Purge of Jewish Physicians

Supplementary data can now be added to the recent reports on the purge of Jewish physicians (THE JOURNAL, September 17, p. 1118, and October 29, p. 1674). September 24 Professor Dr. Klare, "commissioner of the specialized medical press," issued the following statement: "In view of the fact that the German medical profession is now freed of all members of an alien race, the writings of Jewish authors ought not to appear in our German medical journals. At the same time I trust that our German doctors will subscribe only to those foreign journals which are published by Aryan organizations and edited by Aryan physicians. In this connection I should like to call attention to the emigration of the journal *Ars Medici*, together with its Jewish editor and publisher, Dr. Max Ostermann, from Vienna to Switzerland. From its new home this publication continues to solicit the subscriptions of German doctors, but I feel sure that our men will refuse to have anything to do with the Jewish publisher of *Ars Medici*." The mentioned periodical had circulated widely among practitioners within the German reich.

With respect to Jews in the insurance panel practice, it has been newly decreed that those Jews who have been allowed to continue in medical practice (under the restrictions described in previous letters) may now take part in panel practice among insured Jews and their families; a special permit is needed for panel practice.

That, actually, a definite lack of physicians has resulted from the suppression, since October 1, of Jewish doctors is evidenced by the recent establishment of "policlinic treatment centers" at seventeen municipal clinics of Berlin. These centers are designed for the exclusive use of members of sickness insurance clubs and patients referred by the social service agencies; in other words, just those groups which are usually treated by the panel practitioners. It was expressly stated that these auxiliary centers were designed to lighten the load of the panel doctors (a new consideration). The medical staffs of fourteen municipal emergency stations were also increased for the same purpose as well as for emergency house visit duty, especially at night. Meanwhile it has been decreed that the foregoing measures shall be discontinued November 16.

ITALY

(From Our Regular Correspondent)

Nov. 15, 1938.

Registrations in Universities Limited

The minister of national education fixed the number of registrations in the universities of Rome and Naples for the year 1938-1939 at a maximum of 15,000 and 10,000 respectively. The action was taken to prevent a plethora of students and to make the theoretical teaching and laboratory work more profitable. The criteria to be followed in accepting applications for registration will be fixed by the personnel of the universities in agreement with the opinions of the minister of education. Residents in the city will be given the preference over nonresident applicants.

Treatment of Fractures of Limbs

Professor D'Agata of the University of Messina lectured before physicians of the army on modern trends of military surgery. He said that when reduction of a fracture cannot be done satisfactorily at a first aid station, especially in war, it is advisable to apply a Thomas or metallic Cramer splint or a similar apparatus for temporary immobilization. The good position of the fragments is controlled by x-ray examination. Application of large casts in which the proximal and distal joints are included is not advisable. Immobilization is applied only over the focus of the fracture, leaving the limb in a position of rest and, if possible, leaving all the joints free. These conditions can be obtained by traction with the limb, especially the leg, in a double-inclined plane. Adhesive plaster or a bandage with Unna's paste (zinc oxide, glycerin and mucilage) is resorted to when traction is applied to the soft parts. Direct traction on the skeleton can be done by means of wire (Kirschner and Klapp's method) or a nail through the calcaneus. The patient with a fracture of the leg is asked to do certain walking after consolidation of the immobilizing apparatus, as walking stimulates consolidation and prevents rigidity of the joint. For an open fracture some surgeons advise treating first the wound and then the fracture, whereas others follow the inverse order. In first aid stations it is advisable to limit the treatment to cleansing the wound, temporary immobilization of the limb without reduction of the fracture, and bandaging the wound. The patient is immediately transported to a surgical center so that he may have proper treatment during the first four or six hours after trauma.

Meeting of Academy in Florence

The Accademia Medico-Fisica of Florence recently met. Dr. Ferranti spoke on the value of electrocardiography in the diagnosis of coronary insufficiency. He said that only the monophasic wave and the coronary wave, which is a proper wave of myocardial infarct, are of precise diagnostic value. A Q_3 wave of the Willins type in patients with precordial pain shows the presence of Roemheld's syndrome rather than coronary insufficiency. It depends on a transverse position of the heart. A depression of the S-T segment or an inversion of the T wave may be due to hypertrophy of the right or the left ventricle. The simultaneous presence of other signs of predominance of either ventricle shows ventricular origin, whereas their absence shows coronary origin. The tests for diagnosis of coronary functions are of little value. The speaker advised a careful study of the electrocardiograms for a precise interpretation of diagnostic value.

Dr. Bretta said that he followed the behavior of the potassium-calcium ratio of the blood of normal persons after administration

of a large dose of insulin. Calcemia increased and potassemia diminished in disruption of the equilibrium of the sympathetic over the vagal stimulation. The speaker believes that the sympathetic disequilibrium is the cause of the disturbances of circulation of diabetic patients in the course of insulin therapy.

New Type of Malignant Granuloma

Professor Freund, in a lecture recently delivered to the Associazione Medica Triestina, spoke on a new type of Sternberg lymphogranuloma. He reviewed Oberling's classic experiments on leukemia in chickens and the identification of the virus in the disease. He reported three cases of grave fungoid mycosis, a case of lymphocytoma and a case of malignant lymphogranuloma of Sternberg's type. His case and two cases reported from France in 1917 form the group of cases of a new type of malignant lymphogranuloma which is generally called perioral eosinophilic granuloma.

POLAND

(From Our Regular Correspondent)

Nov. 27, 1938.

Reaction of Physicians to the New Medical Law

As reported some months ago, the number of physicians in Poland is much too small in proportion to the total population. There is a remarkable want of medical service in the villages, as most of the physicians are concentrated in large cities. This fact has long been considered by the medical authorities. Some months ago a bill was passed by the Polish diet aimed at satisfying the health demands of the country, according to which every physician who graduates after April 1, 1939, will be allowed to practice in large cities only after he has practiced for two years in towns of less than 5,000 inhabitants. The law caused a strong reaction among physician and student organizations. A deputation of the general medical council, with its president, Prof. Mieczysław Michałowicz, received by the prime minister, claimed that the law will fail to obtain any positive improvement in the state of medical service in villages. Moreover, it will deter the youth from medical careers, as no financial aid for physicians obliged to practice in villages has been provided. Furthermore, the law will infringe on the right of every adequately qualified physician to practice anywhere in Poland. The students, in protest, stopped attending lectures for three days. The strike broke out last week in faculties of medicine all over Poland.

Organization of Medical Aid for Jewish Refugees

At the German-Polish frontier many thousands of Jewish refugees from Germany have been arrested by the Polish authorities. The refugees have lived under very bad hygienic conditions and have been exposed to undernutrition and atmospheric influences. The society for the health protection of the Jewish population in Poland, "TOZ," under the management of Dr. L. L. Wulman, has organized free medical aid for the refugees. A hospital was established at the frontier with an isolation ward for patients with infectious diseases and three infirmaries for outpatients. The staff consists of fifteen physicians. In the last weeks over 16,000 patients have been attended. There were 1,139 with influenza, 1,065 with catarrhal disorders of the respiratory tract, 829 with sore throat, 709 with rheumatism, 513 with peptic disorders, 349 with cardiac disorders and fourteen with mental disorders.

A New Medical School

When the question of obligatory practice in villages was taken up, the diet decided to take other measures to satisfy the demands for medical service and to raise the number of physicians. There are five universities with faculties of medicine, and the government proposed to establish a medical school in Lodz, a city of more than 500,000 inhabitants, which has had no university. The project was welcomed by the inhabitants of Lodz, and a committee was organized to supply financial aid for the founding of the school. The antisemitic organizations of students of medicine in other cities, however, passed a resolution protesting against the establishing of the school, claiming that it would increase the percentage of Jews in the medical profession, since there are many Jews in Lodz and the committee is supported financially by Jewish philanthropists. This action of the antisemitic students is held by democratic groups to be a handicap in the supplying of sufficient medical aid to the country. In spite of it the building of the new medical school will begin shortly.

Treatment of Bronchial Asthma with Insulin Shock

Dr. Z. Askanas of Warsaw recently reported on the treatment of bronchial asthma by the method of Dr. Węgierko, of Warsaw University, a method based on the observation that hypoglycemic shocks provoked by insulin control attacks of dyspnea in cases of bronchial asthma and diminish the disposition to recurrence. The effectiveness of the treatment is attributed not to the action of insulin itself but to the desensitizing effect of the hypoglycemic shocks. The author administered subcutaneously 40 units of insulin with the patient's stomach empty. The first manifestation of shock appeared in about forty-five minutes as a sensation of heat and a slight tremor of the hands. In from seventy to ninety minutes other features of shock appeared: tremor of the limbs, great hunger, profuse perspiration, a decrease in the pulse rate, a slight decrease in the arterial pressure and in the temperature and hyperreflexia. Sometimes the patient complained of palpitation of the heart or uneasiness. Great relief from the dyspnea was obtained soon after the early manifestations of shock had appeared. Some minutes later the dyspnea stopped entirely. The shock was stopped in from thirty to sixty minutes by the oral administration of large doses of sucrose solution, bread, honey, cakes and fruits. An immediate stopping of the shock can be obtained by intravenous injection of 20 to 40 per cent dextrose solution. To obtain improvement for a longer time, the author repeated the shocks every one to three days. The whole treatment consisted of from five to seventeen shocks.

In fifty-eight of sixty-five cases, great improvement was obtained. The attacks of dyspnea have not reappeared in from ten months to three years after treatment. Shock therapy failed to achieve permanent results when the bronchial asthma was associated with extensive pulmonary emphysema or serious endocrine disorders or was related to focal infection. There were seven cases of such asthma in the series. Shock therapy is the method of choice for asthma related to emotional disturbances, allergy, functional endocrine disorders and, especially, asthma in children. Even when permanent relief was not obtainable there was prompt control of the dyspneic attack in all cases.

Marriages

Thomas Hamilton Hogshead, Staunton, Va., to Miss Catherine Louise Gierhart of Yonkers, N. Y., in September.

Amos Gilmore Crumpler, Fuquay Springs, N. C., to Miss Dorothy May Raine of Royersford, Pa., August 26.

Frank Randolf Philbrook, Randolph, Mass., to Miss Madeline Hartford of Berwick, Maine, July 2.

Robert B. Johnson, Bloomington, Ind., to Miss Ida Wood of Spencer in Indianapolis, September 10.

Thomas D. Thompson to Miss Martha Simons, both of Spokane, Wash., August 26.

Richard Collins Jr., Waltham, Mass., to Miss Jean Chapman of Lincoln, August 26.

Thomas E. Byrne, Mentor, Ohio, to Miss Alice G. Mullen of Madison, Wis., recently.

Deaths

George Burgess Magrath, Boston; Harvard University Medical School, Boston, 1898; member of the Massachusetts Medical Society; medical examiner of Suffolk County, 1907-1935; professor of legal medicine, emeritus, at his alma mater and at various times assistant in pathology, assistant in hygiene and instructor in legal medicine; was the first incumbent of a new chair of legal medicine established in 1932 at Harvard University, an appointment made on his twenty-fifth anniversary of service as county medical examiner; in 1934 the George Burgess Magrath Library of Legal Medicine at Harvard was dedicated in his honor; lecturer at the Lowell Institute; pathologist to the Long Island Hospital, 1898-1905, and the Carney Hospital, 1900-1905; co-author of "Studies in Variola and Vaccinia," 1903; aged 68; died, December 10, in Massachusetts General Hospital, Phillips House, of cerebral hemorrhage.

Joseph Addison Crowell ● Iron Mountain, Mich.; University of the City of New York Medical Department, 1881; fellow of the American College of Surgeons; past president of the Dickinson-Iron Counties Medical Society; formerly mayor, and member of the board of education; was chairman of an exemption board during the World War; aged 84; on the staff of the Iron Mountain General Hospital, where he died, October 22, of injuries received when he fell into the basement while the trap door was open.

Richard Cecil Smith ● Superior, Wis.; Washington University School of Medicine, St. Louis, 1911; member of the American Academy of Ophthalmology and Oto-Laryngology and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; ophthalmologist to St. Mary's, St. Francis and Good Samaritan hospitals; aged 52; died, October 30, of coronary occlusion.

Louis Anthony Meraux, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1904; member of the Louisiana State Medical Society; for many years sheriff of St. Bernard parish; at one time parish health officer; aged 58; died, October 6, in the Hotel Dieu, Sisters' Hospital, of coronary thrombosis, diabetes mellitus and carbuncle of the neck.

Owen Taylor, Kent, Wash.; Bellevue Hospital Medical College, New York, 1895; member of the Washington State Medical Association; fellow of the American College of Surgeons; served during the World War; on the staff of the Suburban Hospital, Auburn, formerly known as the Owen Taylor Hospital; aged 71; died, October 3.

Arthur Alston Morrison ● Savannah, Ga.; University of Georgia Medical Department, Augusta, 1923; fellow of the American College of Surgeons; chairman of the city council; on the staffs of the Warren A. Candler Hospital, St. Joseph's Hospital and the Georgia Infirmary; aged 38; died, October 17, of coronary occlusion.

Jerome Francis Smersh ● Owatonna, Minn.; University of Minnesota Medical School, Minneapolis, 1917; fellow of the American College of Surgeons; president of the board of health; served during the World War; aged 46; on the staff of the Owatonna City Hospital, where he died, October 26, of pneumonia.

Richard Milo Olin, East Lansing, Mich.; University and Bellevue Hospital Medical College, New York, 1899; member of the Michigan State Medical Society; state commissioner of health, 1917-1927; director of the health service, Michigan State College; aged 63; died, October 4, of coronary thrombosis.

Charles Simpson, Southbridge, Mass.; M.B., Laval University Medical Faculty, Montreal, 1903, and M.D. in 1904; member of the Massachusetts Medical Society; chairman of the board of health and school physician; on the staff of the Harrington Memorial Hospital; aged 61; died, October 12.

Alfred Edwin Rhein, Terre Haute, Ind.; Eclectic Medical Institute, Cincinnati, 1906; University of Illinois College of Medicine, Chicago, 1913; member of the American Academy of Ophthalmology and Oto-Laryngology and the Indiana State Medical Association; aged 55; died, October 21.

William Humphreys Miller, Terre Haute, Ind.; Northwestern University Medical School, Chicago, 1907; member of the Indiana State Medical Association and the American Academy of Ophthalmology and Oto-Laryngology; on the staff of the Union Hospital; aged 56; died, October 4.

Japheth Edward Rawls ● Suffolk, Va.; University and Bellevue Hospital Medical College, New York, 1899; fellow of the American College of Surgeons; aged 63; medical superintendent of the Lakeview Hospital, where he died, October 14, of injuries received in an automobile accident.

Alvin Raymond Moses ● Charlton, Mass.; Tufts College Medical School, Boston, 1920; member of the New England Obstetrical and Gynecological Society; on the staff of the Harrington Memorial Hospital, Southbridge; aged 42; died, October 13, in a hospital at Worcester of pneumonia.

John Manifold Wallace, Lynn, Ind.; Medical College of Indiana, Indianapolis, 1903; member of the Indiana State Medical Association; served during the World War; aged 60; died, October 31, in the Randolph County Hospital, Winchester, of injuries received in an automobile accident.

Robert Pillow, Columbia, Tenn.; University of Pennsylvania Department of Medicine, Philadelphia, 1874; member of the Tennessee State Medical Association; at one time member of the board of education, mayor and health officer; aged 86; died, October 25, of pulmonary edema.

Charles Dearborn McDonald, Boston; Boston University School of Medicine, 1901; served during the World War; member of the Veterans' Administration; aged 63; died, October 20, in the Walter Reed General Hospital, Washington, D. C., of arteriosclerosis and heart disease.

Arthur Churchill Shamblin, Cartersville, Ga.; Grant University Medical Department, Chattanooga, Tenn., 1892; member of the Medical Association of Georgia; county commissioner of health; served on a draft board during the World War; aged 67; died, October 23, in Erick, Okla.

Thomas J. Brown, Grenada, Miss.; Memphis (Tenn.) Hospital Medical College, 1886; member of the Mississippi State Medical Association; city and county health officer; aged 76; on the staff of the Grenada (Miss.) General Hospital, where he died, October 10, of cardionephritis.

William Kennedy Butler ● Washington, D. C.; Columbian University Medical Department, Washington, 1882; professor emeritus of ophthalmology at the George Washington University School of Medicine; member of the American Ophthalmological Society; aged 81; died, October 17.

John Webb Simmons, Martinsville, Va.; Medical College of Virginia, Richmond, 1885; member of the Medical Society of Virginia; for many years county coroner; aged 79; died, October 13, in a hospital at Roanoke of hypertensive arteriosclerotic heart disease and nephritis.

William Adam Wehe ● Topeka, Kan.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1893; aged 69; on the staffs of St. Francis Hospital and the Stormont Hospital, where he died, October 1, following an operation for carcinoma.

Ewan Alexander Robertson ● Newton, Mass.; Chattanooga (Tenn.) Medical College, 1905; member of the New England Society of Psychiatry; medical superintendent and owner of the Woodlawn Sanitarium; aged 73; died, October 18, of coronary thrombosis.

Charles Torrence Nesbitt, Wilmington, N. C.; Baltimore Medical College, 1893; formerly city and county health officer, and health officer of Akron, Ohio; at one time surgeon in the U. S. Public Health Service reserve; aged 68; died, October 10, of myocarditis.

J. Alphonse Samplite, Cloutierville, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1902; member of the Louisiana State Medical Society; for many years member of the parish school board; aged 59; died, October 11, in New Orleans.

Charles Edgar Smith, Mart, Texas; University of Texas School of Medicine, Galveston, 1905; member of the State Medical Association of Texas; formerly secretary of the McLennan County Medical Society; aged 60; died, October 22, of heart disease.

Thomas Lester Waggoner, San Angelo, Texas; Baylor University College of Medicine, Dallas, 1930; member of the State Medical Association of Texas; health director of six districts; aged 34; was found dead, October 30, of a self-inflicted bullet wound.

Willard W. Nye, Hiawatha, Kan.; Jefferson Medical College of Philadelphia, 1877; member of the Kansas Medical Society; for many years county health officer; Civil War veteran; aged 92; died, October 19, of arteriosclerosis and myocarditis.

Fred Bennett Colby ● Gardner, Mass.; Dartmouth Medical School, Hanover, N. H., 1896; formerly city physician, and member of the board of health; on the staff of the Henry Heywood Memorial Hospital; aged 69; died, October 6, of heart disease.

Arthur Shaw McDaniel, San Antonio, Texas; Medical College of Ohio, Cincinnati, 1882; Bellevue Hospital Medical College, New York, 1890; member of the State Medical Association of Texas; aged 82; died, October 18, of chronic myocarditis.

Donald Alpine McGregor ● St. George, Utah; Barnes Medical College, St. Louis, 1903; fellow of the American College of Surgeons; medical superintendent of the Washington County Hospital; aged 62; died, October 11, of coronary thrombosis.

Martin C. Bergheim, Hawley, Minn.; University of Minnesota Medical School, Minneapolis, 1920; member of the Minnesota State Medical Association; aged 52; died, October 4, in St. Ansgars Hospital, Moorhead, of bronchopneumonia.

John Maxson Brown Wainright, Jersey City, N. J.; Columbia University College of Physicians and Surgeons, New York, 1904; on the staffs of the St. Francis and Fairmont hospitals; aged 58; died, October 20, of heart disease.

Frederick Benjamin Schneerer, Deadwood, S. D.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1903; veteran of the Spanish-American War; on the staff of St. Joseph's Hospital; aged 61; died recently.

Frank Wesley Nagler, Yakima, Wash.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900; member of the Washington State Medical Association; aged 72; died, October 8, of heart disease.

William Edgar Thomas, Greensburg, Ind.; Medical College of Indiana, Indianapolis, 1901; member of the Indiana State Medical Association; aged 61; died, October 1, of angina pectoris, arteriosclerosis and hypertension.

Frederick Capin Bowman, Duluth, Minn.; Hahnemann Medical College and Hospital of Philadelphia, 1881; formerly member of the board of education; aged 89; died, October 4, of cerebral hemorrhage and hypertension.

William Scott McKell ● Chillicothe, Ohio; University of Colorado School of Medicine, Denver, 1913; on the staff of the Chillicothe Hospital; aged 55; was found dead, October 17, of chronic valvular disease of the heart.

Stanislaus A. Bouvier, Moosup, Conn.; Victoria University Medical Department, Coburg, Ont., Canada, 1889; aged 74; died, September 16, of arteriosclerosis, cerebral hemorrhage and chronic prostatic hypertrophy.

Benjamin Kelly Simmons, Blakely, Ga.; Atlanta School of Medicine, 1907; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1910; member of the Medical Association of Georgia; aged 68; died, October 7.

Charles Chamberlayne Kingsley Phelps, Sackets Harbor, N. Y.; Bellevue Hospital Medical College, New York, 1898; member of the Medical Society of the State of New York; aged 68; died, September 26.

Theodore Toy Donaldson, Powell, Ohio; Ohio State University College of Medicine, Columbus, 1929; member of the county board of health; aged 33; died, October 4, of coronary occlusion.

John Pierre Nalbant, Plymouth, Mich.; University of Michigan Medical School, Ann Arbor, 1928; aged 38; died, October 3, in the University Hospital, Ann Arbor, of carcinoma of the cecum.

Avis Earl Snyder ● Bryan, Ohio; Jefferson Medical College of Philadelphia, 1894; served during the World War; aged 69; died, October 20, in Crystal Lake, Mich., of coronary occlusion.

Willard T. Nichols, Milwaukee; Northwestern University Medical School, Chicago, 1894; member of the State Medical Society of Wisconsin; aged 73; died, October 22, of coronary thrombosis.

Andrew Fletcher Weathers, Shellman, Ga.; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; member of the Medical Association of Georgia; aged 68; died in October.

John Harvey Saylor ● Marion, Kan.; Kansas City (Mo.) Medical College, 1904; county health officer; aged 72; died, October 17, in Christ's Hospital, Topeka, of mesenteric thrombosis.

Ira T. Roberts, Johnston City, Ill.; St. Louis College of Physicians and Surgeons, 1902; aged 59; died, October 26, in St. Andrew's Hospital, Murphysboro, of cerebral hemorrhage.

Seine Boiks De Pree, Sioux Center, Iowa; Rush Medical College, Chicago, 1903; served during the World War; aged 65; died, October 3, of carcinoma of the colon with metastasis.

Stonewall Jackson Smock, La Grange, Ky.; University of Louisville Medical Department, 1893; served during the World War; aged 72; died, October 1, of carcinoma.

Louis Edward Dionne, Ware, Mass. (licensed by years of practice); for many years chairman of the board of health; aged 74; died, October 16, of cerebral hemorrhage.

Theodore C. Baumhauer ● Uriah, Ala.; University of Pennsylvania Department of Medicine, Philadelphia, 1903; aged 58; died, October 9, of coronary thrombosis.

Franklin Seymour Watterworth, Detroit; Detroit College of Medicine, 1901; on the staff of St. Mary's Hospital; aged 61; died, October 5, of cerebral hemorrhage.

Charles Henry Christian, Austin, Texas; Meharry Medical College, Nashville, Tenn., 1914; aged 47; died, October 3, of uremia, chronic nephritis and myocarditis.

George Averill Tolman, Detroit; Medical School of Maine, Portland, 1893; aged 71; died, October 14, of carbon monoxide poisoning, self administered.

John Edgar Rooks, Shreveport, La.; University of Maryland School of Medicine, Baltimore, 1905; aged 63; was killed, October 18, in an automobile accident.

George William Racey, Park Hill, Ont., Canada; University of Toronto Faculty of Medicine, 1907; aged 56; died, October 13, in an automobile accident.

Robert Mills Smith, Camden, N. J.; Chicago Homeopathic Medical College, 1904; aged 71; died, October 30, of myocarditis and hypostatic pneumonia.

William Marion Bryant, Albany, Ga.; Meharry Medical College, Nashville, 1902; aged 64; died, October 11, in the Phoebe Putney Memorial Hospital.

John Lee Lantz, Kansas City, Mo.; Missouri Medical College, St. Louis, 1893; aged 74; died, October 20, in the Research Hospital of coronary thrombosis.

Clifton B. Olds, Chicago; Hahnemann Medical College and Hospital, Chicago, 1905; aged 72; died, October 31, following an operation for perforated ulcer.

Thomas C. Nichols, Falmouth, Ky.; University of Louisville Medical Department, 1873; aged 89; died, October 8, of diabetes mellitus and myocarditis.

Kate E. Lozier, Washington, D. C.; Columbian University Medical Department, Washington, 1895; aged 84; died, October 24, of bronchitis and pneumonia.

John T. McMath, Strong, Ark.; University of Arkansas School of Medicine, Little Rock, 1905; aged 58; died, October 26, of carcinoma of the lung.

Orvis E. Biggs ● Hot Springs National Park, Ark.; Barnes Medical College, St. Louis, 1908; aged 62; died, October 17, of coronary thrombosis.

Ralph William Steele, Fayetteville, Ark.; University of Arkansas School of Medicine, Little Rock, 1916; aged 48; died, October 8, of nephritis.

John Folta ● Ceylon, Minn.; University of Minnesota Medical School, Minneapolis, 1929; aged 37; died suddenly, October 14, of coronary sclerosis.

Henry Stoesser, Woodhaven, N. Y.; Eclectic Medical College of the City of New York, 1898; aged 76; died, September 26, of arteriosclerosis.

Dennis Maxwell Smith, Madsen, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1933; aged 30; died, October 30, of burns.

Charles Franklin Spalding, Springfield, Mass.; Columbus Medical College, 1886; aged 79; died, October 7, in the Wesson Memorial Hospital.

John MacOuat Drew, Lachute, Que., Canada; University of Edinburgh Faculty of Medicine, Scotland, 1911; aged 58; died, September 13.

Warren J. Hall, Oakfield, Ga.; Atlanta Medical College, 1885; member of the Medical Association of Georgia; aged 84; died, September 16.

Alexander M. McCreary, Poland, Ohio; Eclectic Medical Institute, Cincinnati, 1876; formerly mayor; aged 87; died, September 26.

James Henry Roth, Chicago; Rush Medical College, Chicago, 1895; aged 70; died, October 1, of cerebral hemorrhage.

John Henry Cox, Lucasville, Ohio; Eclectic Medical Institute, Cincinnati, 1889; aged 85; died, October 20, of senility.

Marvin A. Nunn, Halls, Tenn.; Memphis Hospital Medical College, 1901; aged 59; died, October 31, of pneumonia.

C. J. Curry, Benton, Ark. (licensed in Tennessee in 1889); aged 78; died in September.

Bureau of Investigation

THE INTERSTATE SERVICE

Exploiting Prescriptions for Complaisant Physicians

The vagaries of the mail-order business are axiomatic: now comes a concern known as the Interstate Service at 111 West Jackson Boulevard, Chicago, which appears to be writing to physicians with the hope of developing private prescriptions into nostrums. One paragraph of the promotional letter reads:

"How often have you thought of a favorite and unusually effective prescription that you would like to make available to the general public? One that could take its place with many of the proprietary preparations now generally on sale. Each of us cherishes some life long ambition and only the lack of opportunity prevents the fruition of long deferred plans. Ask yourself this question and determine right now whether any further delay is necessary."

This attempt to win doctors to commercial exploitation of their prescriptions is a strange type of seduction. Another section of the letter reads:

"Let each specialist keep within his field. And only by collaboration can the greatest good be achieved. We address you, a physician, as specialists in the field of mail-order selling. And, as such, we say that the cost of launching such a venture is moderate. You provide the formula. It is our business to help sell it for you."

And, as a final shot in the dark, the letter closes with the following plea:

"These are days when additional sources of income should not be overlooked. Why content yourself with a vague hope and a further promise to do something about that formula 'some day.' Please drop us a note requesting further particulars."

No reputable physician would, of course, lend his services, knowledge or personal treatment to such a performance. It is a peculiar form of stupidity that would lead a promoter to put out such an appeal at a time just after the new Wheeler-Lea and Food and Drug legislation have been passed. It is sad to think that there might be some physicians who would consider participation in such an unscientific and unethical venture.

THE R. W. McCLINTOCK FRAUD

Research Laboratories Foundation Debarred from the Mails

"McClintock's Formula for Diabetes," "Sto-Bo-Ki" for "stomach sufferers" and "McClintock's Kidney and Bladder Sterilizer" were three mail-order fakes sold by a quack, one R. W. McClintock, who did business under the imposing trade styles "Research Laboratories Foundation" and "McClintock's Laboratories" at Ann Arbor, Mich. On July 14, 1938, the Postmaster General issued a fraud order closing the mails to McClintock and his two trade names. The information that follows is based partly on the memorandum of Hon. W. E. Kelly, acting solicitor for the Post Office Department, to the Postmaster General, and partly on material in the files of the Bureau of Investigation of the American Medical Association.

In 1933 the McClintock's Laboratories, then conducted from the Insurance Exchange Building, Detroit, was advertising ("for Adults Only") what were termed "60 Jewels of Life—A Safe and Effective 30 Day Treatment for Nerves and Glands Resulting in Happy, Normal Life." Price $6.

In 1934 the McClintock fakery had moved to Ann Arbor and was featuring three nostrums: "Sto-Bo-Ki" for "stomach trouble," "Ex-Fre" for skin disorders and "McClintock's Whooping Cough Formula." At that time Sto-Bo-Ki was McClintock's *opus major* and testimonials with names and addresses were part of the advertising. Thus, Mr. Charles G. Lindner of New Castle, Pa., claimed to have cured himself of a long-standing case of duodenal ulcer with one bottle of Sto-Bo-Ki; Mr. Charles Estenberg of Detroit testified that he and his wife were both "completely cured of a bad stomach condition"; Mr. Donald Kirkendall, also of Detroit, claimed to have "entirely recovered" from "kidney trouble," from which he suffered for many years, after taking one bottle of Sto-Bo-Ki.

In 1936 Sto-Bo-Ki was being recommended as a cure for diabetes; later (1937-1938) McClintock was ballyhooing what he called his "Formula for Diabetes." The apparent discrepancy was cleared up by the analyses made by government chemists for the Post Office Department; Sto-Bo-Ki the stomach remedy and McClintock's Formula for Diabetes were apparently the same thing! Each was found to be essentially a solution of free sulfuric acid and ethylsulfuric acid in alcohol flavored with cinnamon and ginger. In other words, the Aromatic Sulfuric Acid (Acidum Sulfuricum Aromaticum) of the U. S. P. and B. P. This may account for the claim made by McClintock in 1934 for Sto-Bo-Ki, before he decided to sell the same thing under two names for two widely different conditions. At that time he advertised Sto-Bo-Ki, in part, as follows:

"For this resultful remedy is the heritage of a family of famous physicians and chemists. The formula was discovered more than seventy-five years ago and is recorded in both the English and U. S. Pharmacopeia. More than twenty physicians and chemists, descendants of the discoverer, have guarded and handed down this precious formula from one generation to another. Today Robert McClintock, a direct descendant, controls the formula. This is STO-BO-KI, which is registered with the Pure Food and Drug Administration at Washington, D. C. . . ."

In a 1938 advertising leaflet McClintock declared that his "Formula for Diabetes" was "Registered with the United States Pure Food and Drug Administration and also the United States and British Pharmacopeias." In recent years McClintock developed caution in publishing what he declared were testimonials. No names or addresses were given other than such vague identification as "W.H.S. — Michigan," "K.C. — Georgia" and "L.I.H. — Pennsylvania."

McClintock's Formula For Diabetes

Scientific — Ethical — Reliable

IT MAY seem strange to persons who have always heard and believed that there was no cure for Diabetes to learn now that McClintock's Formula for Diabetes never has failed in a single instance to give satisfactory results.

Just as the old theory of starving typhoid patients has been reversed through scientific research to feeding them, we, too, have found a new method of treating diabetes. This method is the result of years of scientific laboratory tests which have shown us that the presence of sugar in the urine is the result, and not the cause of diabetes. And upon this cause, we have spent a lifetime of investigation in our laboratories.

So science again has moved a step forward in the ranks of progress. It has revolutionized the old theory of the insulin needle and starvation, to regular diet and the readjustment of the digestive organs.

McClintock is not a physician. According to the solicitor's memorandum McClintock claimed to be a chemist but no evidence appears in the record to substantiate the claim. McClintock also claimed—according to the memorandum—that he discovered the diabetes remedy (Acid. Sulf. Arom., U. S. P.) while his grandfather discovered Sto-Bo-Ki (also Acid. Sulf. Arom., U. S. P.)! McClintock offered no medical testimony in behalf of his nostrums but, as shown, did submit a number of testimonials. In this connection it is worth repeating what a former attorney general for the Post Office Department said a few years ago after having heard a large number of cases of medical mail-order fraud:

"Speaking generally it may be said that in all my experience in this office never has a medical concern, no matter how fraudulent its methods or worthless its treatment, been unable to produce an almost unlimited number of these so-called testimonials letters."

For a time McClintock had associated with him in what he claimed was an "advisory capacity" a Dr. C. B. Stouffer, who got out from under in March 1938. It was on April 29 that the Post Office officials served notice on McClintock to show cause why a fraud order should not be issued against him and his schemes. In fact, Dr. Stouffer's name was included in the list of those against whom the Post Office brought charges. According to the biographic files of the American Medical Association, Dr. Stouffer was born in 1878, received a diploma from the University of Michigan Homeopathic Medical School in 1913 and in the same year obtained licenses to practice in Michigan and Maryland. He is not a member of the American Medical Association. As Dr. Stouffer was no longer connected with McClintock's quackery when the fraud order was issued in July 1938, his name was not included in the order.

To physicians familiar with the pathology of diabetes and of stomach and duodenal ulcer (for which McClintock's nostrums

were recommended) the viciousness of the claims made for these products is obvious. But to those without medical knowledge the claim that the diabetic patient by using McClintock's nostrum could "eat a normal meal" and the further claim that the preparation "never had failed in a single instance to give satisfactory results" might readily lead to serious if not fatal results. The public once more has to thank the Post Office Department for protecting it against a cruel fraud by declaring that the McClintock scheme was one for obtaining money through the mails under false and fraudulent pretenses, representations and promises, and by closing the mails to it.

According to the evidence submitted at the Post Office hearing McClintock obtained his victims by "advertisements respecting his preparations being placed in various periodicals." The inevitable hook-up between certain publishers and quacks.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

PROBABLE BRAIN ABSCESS AND SYMPATHETIC MENINGITIS

To the Editor:—A sailor aged 23 was admitted to a hospital July 15, 1938, complaining of headache, fever and rigidity of the neck. The present illness started eight days before admission as persistent left-sided headache and moderate fever. The following day the headache became more intense and the fever higher; he had attacks of vomiting for two days and complained of rigidity of his neck and pain whenever he tried to bend his head and of pains in the lumbar region radiating to both lower extremities. Together with these symptoms he also noticed an increase of the purulent discharge from that ear. He had been having purulent discharges from both ears off and on for nine months. One year and five months ago he was accidentally struck in the head with a piece of lumber, which rendered him unconscious for two days. On regaining consciousness he had paresis of the left half of the body, which gradually disappeared almost completely after five months' treatment except for slight weakness of the left lower extremity. The patient was highly febrile (39.2 C., 102.5 F.) on admission but was conscious; tenderness was elicited at the exit of the cranial nerves; the neck was rigid; the knee jerks were exaggerated; Kernig's sign was positive. The ears showed central perforation of the drum membrane, about 2 mm. in diameter, with a slight purulent discharge. There was no sagging of the posterosuperior wall of the auditory canal and no mastoid tenderness. Hearing tests showed slight conductive deafness. The vestibular tests showed normal reaction to turning and caloric tests. Examination of the blood July 15 revealed total leukocytes 21,400 per cubic millimeter, neutrophils 84 per cent, lymphocytes 12 per cent, mononuclears 4 per cent, eosinophils 0, basophils 0. The urine was normal. Blood culture July 20 was negative. Culture from the cerebrospinal fluid July 18, July 20 and August 3 was negative. The report of an x-ray examination of the mastoids July 18 stated that no definite opinion could be given. Culture from the nasopharynx July 23 was negative for meningococci and positive for Staphylococcus albus and aureus and diphtheroids. Treatment consisted of repeated lumbar puncture, the administration of sodium salicylate and methenamine and hypodermoclysis with isotonic dextrose solution. The fever soon abated; four days after admission the patient was afebrile and has remained so ever since. The headache and rigidity of the neck rapidly disappeared. The discharge from the ear also rapidly decreased even though the ear was not treated. However, up to the present time (August 20) slight weakness and numbness of the left lower extremity has remained. I should like to know your diagnosis of the case. Failure to isolate any organism from the cerebrospinal fluid naturally made the diagnosis difficult and speculative. Is it a case of purulent meningitis of otitic origin? If so, how did the infection get into the subarachnoid space? There were definitely no signs of mastoiditis, labyrinthitis or other septic focus in the temporal bone. The symptoms of meningitis were not preceded with pain and increased discharge from the ear. Don't you think that the purulent meningitis was probably due to organisms which entered the cranial cavity through the nose, as for instance meningococci? There are cases of the mild or abortive type of meningococcic meningitis in which I believe recovery may occur without serum therapy but by lumbar puncture only. Merritt and Fremont-Smith (The Cerebrospinal Fluid, Philadelphia and London, W. D. Saunders Company, 1937, p. 97) mentioned a case of meningococcic meningitis in which recovery occurred without any therapy except lumbar puncture. In the Philippines meningococcic meningitis is a comparatively uncommon disease and does not occur in epidemics.

Cerebrospinal Fluid Examination

	7/15/38	7/18/38	7/20/38	8/3/38
Color	pale yellow	pale yellow	colorless	colorless
Reaction	alkaline	alkaline	alkaline	alkaline
Clearness	turbid	turbid	clear	clear
Consistency	thin	thin with purulent clot	thin and delicate clot	thin
Total cells	6,300 per cu. mm.	4,300 per cu. mm.	350 per cu. mm.	35 per cu. mm.
Polymorphonuclears	87%	85%	32%	12%
Lymphocytes	10%	7%	62%	85%
Endothelial cells	3%	8%	6%	3%
Sugar	negative	slight (23.5 mg.)	38.2 mg.	51.8 mg.
Pandy test	heavy	moderate	moderate	trace
Chlorides		650.1 mg.	664.95 mg.	711.15 mg.

A. S. FERNANDO, M.D., Manila, P. I.

ANSWER.—This patient suffered a severe head trauma, sufficient to render him unconscious, leaving in its train a hemiparesis and as an after-effect a muscular weakness in the left lower extremity. Eight months later a chronic purulent otitis media and meningeal symptoms developed: nuchal rigidity, high temperature and increased otorrhea. All of these also ran their course, with recovery taking place but leaving behind the same weakness in the left lower extremity. The diagnosis of a purulent meningitis can hardly be substantiated from the data submitted. Neither does the case history present any significant data on which to establish a diagnosis of meningococcic meningitis. The sequence of events that transpired may be reconstructed from the data given: From the trauma which this patient suffered there was formed a small blood clot which, by locally exerted pressure, accounted for the hemiparesis and the muscular weakness that remained afterward. Eight months later this encapsulated, partly organized clot became infected with the same organism which produced the purulent chronic otitis media. Thus there was formed an encapsulated brain abscess which conceivably "leaked" into the tympanic cavity and partly emptied itself in the discharge from the tympanic cavity through the perforation in the drumhead. The reactions noted in the cerebrospinal fluid are strongly suggestive of a meningeal tissue reaction, which is generally termed "meningitis sympathica." The second spinal tap, taken May 18, already shows a return of the carbohydrate content of the fluid, and the succeeding taps show this element increasing. Likewise the spinal fluid chlorides increased with succeeding spinal taps. This and the successive drop in the cell content are evidence enough of a meningeal tissue reaction which was in process of recession. The absence of bacteria in the fluid is further evidence of its nonpurulent nature. This observation of an abacterial fluid precludes the diagnosis of meningococcic meningitis as well as that of an otogenic streptococcic meningitis.

The case does not assume any of the aspects of a purulent meningitis of otitic origin. It more nearly approximates that of a meningeal irritation due to a secondarily infected blood clot, the latter produced by trauma. The brain abscess may be small. At present, from the description given in the inquiry, there is no sure evidence at hand to warrant the belief that the clinical course of this lesion has completely run its course. There may be subsequent developments which will require observation by both otologists and neurosurgeons.

CHRONIC DERMATITIS

To the Editor:—A white man, aged 43, complains of severe itching of the face. Burning and scaling occur daily regardless of the season but are more severe during hot weather. His present complaint dates back to 1924, when he was working in a gold mine in Idaho and noticed a rash on his forehead, which was treated as a sweat band rash with picric ointment. This condition was followed by a severe rash over the entire face; it was of the weeping type with slabs of yellowish matter peeling off and leaving raw, oozing surfaces. He was hospitalized and advised to have his teeth and tonsils removed. Following this he was sent to the Veterans' hospital. He remained there seven months, during which time multiple boils and abscesses developed. A culture was made and vaccine used to treat this condition. There is no history of syphilis and his past history is good. I have given him a series of Lederle's special pollen antigen and a course of autohemotherapy for possible allergic reaction to wild weeds. Can you advise any further treatment to alleviate this man's condition?

M.D., Nevada.

ANSWER.—Careful search for the etiologic basis in such cases is often without avail. Multiple sensitization following the severe picric acid dermatitis with infection seems likely and a neurodermatitis may have been added during the fourteen years of suffering. The summer exacerbations may be due to a reaction to some pollen present in the air, to increased perspiration or to untoward activity of the cholinergic side of the vegetative nervous system. Low diastolic blood pressure, high metabolic rate, rapid pulse and a tendency to flush and to sweat on slight provocation would bear out the latter suspicion.

A thorough general examination, if not already made, should be done with special attention to the possibility of other foci

of infection in the gastrointestinal or genito-urinary tracts. The blood picture should be studied. Possible sources of reflex irritation should be sought.

Patch tests should be made on the skin adjacent to the area of inflammation with all substances that come in contact with the patient's face or that can be carried there by the hands. A small amount of the suspected substance is placed on the skin, covered by a small square of gauze fastened with tape, to avoid confusion of the reaction to the suspected substance with that so often seen to adhesive tape. If a dry substance, it can be moistened with water or better with the patient's own perspiration. No substance irritating to a normal skin should be used nor should any volatile substance be covered. The patches should be left on for two days unless severe itching occurs before that time. On removal of the patch it is well to mark the number of the patch on the skin so that a late reaction may be recognized. Inhalation tests may be made also, having the patient snuff up various dusts that are apt to contaminate the air he breathes and noting any exacerbation of the dermatitis that may follow. All positive tests should be repeated to rule out coincidence.

Whether or not such investigation succeeds in detecting the cause or causes of the dermatitis, local treatment is important. When the skin oozes or is acutely inflamed, cool wet dressings of aluminum subacetate solution, one part to sixteen parts of water, or calamine lotion or saturated solution of boric acid should be used. As the acuteness lessens, zinc paste applied thinly may be substituted, or a dry skin may do better with zinc ointment or even borated rose water ointment. Stimulating agents such as salicylic acid, resorcinol, crude coal tar, wood tars or sulfur must be used with caution. Before applying them to the whole affected area a patch test should be made or the proposed preparation should be applied to a small part of the inflamed area, which amounts to the same thing. Only after such application has proved harmless should the preparation be used generally.

Ultraviolet rays benefit some patients in this category, used locally and generally in suberythema doses. If the patient goes outdoors he probably gets all the ultraviolet radiation that is good for him. If roentgen rays have not been used they may afford great relief for a time, though the probability of a definite cure is slight. One-fourth erythema dose, 87 roentgens once a week for a few treatments, should bring relief if the dermatitis is amenable to this agent and in any event not over three or four full doses, 1,050 or 1,400 roentgens, should be given. The patient must be warned against repetition of roentgen treatment at any future date. For this reason it is preferable to save the roentgen rays for severe exacerbations resistant to other measures.

Sedatives such as bromides or phenobarbital may be of great assistance. Every effort must be made to restrict rubbing and scratching, for if this is not stopped no effect will be obtained from other measures. Mental treatment is of great importance.

Attempts to alter the balance of the vegetative nervous mechanism by autogenous blood injections or intravenous injections of solution of sodium thiosulfate may be helpful.

VASOMOTOR RHINITIS

To the Editor:—A girl aged 19 has been suffering from vasomotor rhinitis for the past year, the onset having been last July. Treatment has consisted of nonspecific protein (orally), calcium, nitrohydrochloric acid, belladonna, ephedrine and phenobarbital without noticeable effect. Local applications of various vasoconstrictors, such as ephedrine, epinephrine, benzedrine and neosynephrin give but temporary relief. She has been tested cutaneously for foods, epidermals and pollens, also for incidentals such as dust, hapek and orris root, with no positive reactions. A competent rhinologist confirmed the diagnosis but was unable to add anything further to the treatment. Physical examination and urine and blood tests reveal no deviation from normal except for atrophic chronic infected tonsils. Can you suggest any other treatment? Would there be a possibility that tonsillectomy might improve her condition?

R. Hoven Weisel, M.D., Bowmanstown, Pa.

Answer.—In the absence of detailed information, it is impossible to say wherein the treatment could be improved. It would be helpful to know whether the skin tests for food were done by the scratch method or by the more sensitive intradermal method, always remembering that at best the number of positive reactions may not be over 25 per cent. Those using the intramucosal method report as high as 80 per cent positive results. The antigen is injected in minute amounts in the anterior end of the inferior turbinate. Lastly, no mention has been made of the leukopenic index test following food ingestion. The term "vasomotor rhinitis" covers a multitude of conditions. It would be necessary to know whether there are polyps present and whether these are large enough to produce mechanical blocking of the nasal passages. It would be most important to see whether there is a true hypertrophy of the turbinates and the posterior ends of the inferior turbinates, hypertrophy of which would mean at least some degree of surgical intervention before the patient could be expected to breathe well through the nose. There remain a number of therapeutic methods regarding which there is some dispute but which in individual cases have offered some measure of improvement, including zinc ionization of the nasal mucosa, the injection of alcohol solutions beneath the mucosa of the turbinates, the similar injection of sodium morrhuate solutions and the blocking of nasal nerves with alcohol as advocated by Otto J. Stein in 1908 (Some Observations on Hyperesthetic Rhinitis, *Laryngoscope* **18**:692, 1908) and others since. Hansel in his textbook "Allergy of the Nose and Paranasal Sinuses," St. Louis, C. V. Mosby Company, 1936, gives complete information about the treatment of this type of disease.

REMOVAL OF EXCESS HAIR

To the Editor:—In Queries and Minor Notes (The Journal, Dec. 25, 1937, p. 2161), regarding removal of hair from about the nipples in a woman aged 25, the answer states: "Electrolysis is the only approved method for permanent removal of hair." I should like to know what are the objections to the use of the coagulating current (high frequency) for the same purpose. Should the hair about the nipples be handled in a different way from that of the face? Please discuss electrolysis (with one needle and with multiple needles) and coagulation in the permanent removal of hair.

Francesco Roncerie, M.D., Providence, R. I.

Answer.—Although both methods mentioned require experience to remove superfluous hairs properly, electrolysis with the single needle method is usually a wiser procedure, associated with less local reaction and lessened danger of scarring. To remove hairs about the breast area with electrolysis, the procedure is much the same as that for the removal of hair about the face. While theoretically, there may be increased speed with the multiple needle method of electrolysis, practically it is much more difficult to control any variation in current by this method; scarring is more likely to supervene, and there is also more associated pain with the multiple needle method. All in all, the single needle method is the expeditious one, and a careful operator can accomplish as much with fewer complications and less discomfort to the patient by this method.

BRAXTON HICKS CONTRACTIONS, PENTOBARBITAL SODIUM AND STILLBIRTH

To the Editor:—A primipara aged 32 was delivered of a 6½ pound (3 Kg.) baby. Although heart beats (130) were heard until a few minutes before delivery, it was not possible to resuscitate the baby. Labor and delivery were normal. The second stage of labor was a little long, over one and one-half hours. Four and one-half grains (0.3 Gm.) of pentobarbital sodium was given and nitrous oxide gas was used to dull the pain. There was no toxemia during pregnancy; the kidneys were normal. The blood pressure was 94 systolic, 60 diastolic. The mother had contractions of the uterus for the last four or five months of pregnancy. Sometimes they were five minutes apart but usually twenty minutes, a half hour or an hour apart, day and night. There was no pain, although the uterus became tight. Could they have weakened the baby so that it could not stand labor? Could anything have been given to stop these contractions? Twelve years ago when the mother had an appendectomy her doctor told her she had an infantile uterus. She is a doctor's wife and was anxious to have her baby. If she becomes pregnant again, would you advise a cesarean section?

M.D., Texas.

Answer.—It is difficult to surmise the cause of death of the baby in the absence of a necropsy. Many babies who appear perfectly normal on external examination have serious congenital anomalies incompatible with life. The analgesia that the patient received could likewise have contributed to the fatal termination. Although the dose of pentobarbital sodium was not excessive, this drug combined with the administration of nitrous oxide tends to increase the incidence of asphyxia in the newborn with the resultant hazard of a fatal termination.

The Braxton Hicks contractions that occurred during pregnancy could not have been responsible for any possible damage. These contractions often become severe enough at the end of pregnancy to require some sedation and yet produce no harmful effects. It is hardly possible that they could have weakened the baby. Although progestin has been recommended for the relief of these contractions, its use would not have been indicated in this case. An infantile uterus likewise would not be a contributory cause. It is possible that such a condition would be a cause for sterility, but this patient had an uneventful pregnancy and labor.

If the patient becomes pregnant again, a cesarean operation need not be considered because of this recent experience. Her pelvis must be quite adequate, and this first labor was not at all abnormal in character. It would be well, however, to use analgesic drugs sparingly and perhaps substitute some drug for the pentobarbital sodium. It is unlikely that this unfortunate experience would repeat itself.

CARDIORENAL HYPERTENSION AND APOPLEXY

To the Editor:—A patient aged 56, 5 feet 5 inches (165 cm.) tall and weighing 185 pounds (84 Kg.), has suffered from hypertension of nephritic origin for the last ten years. He had a "stroke" Aug. 14, 1938, the right leg, right arm, the right side of the face and speech being involved. August 16 his right leg improved and he could raise his arm, but on August 17 he had another hemorrhage, the leg becoming bad again, the arm the same, and the speech became more "thick" and indistinct. He again showed improvement August 20 but developed an annoying hiccup August 22. At first I controlled it with an ice bag. Later on that was not enough. I tried sedation, belladonna, bromides and hyoscyamus, which did not help, so then I tried atropine. This controlled it, but when I paralyzed the vagus and controlled the diaphragm I lost control of the heart, and the pulse went up from 75 to 105. What would you advise me to do in this case? What is the prognosis?

HARRY HALLARMAN, M.D., New York.

ANSWER.—Hypertension with renal involvement, whether secondary or not, has an ominous prognosis. The occurrence of apoplexy implies, but does not prove, that there is considerable arterial degeneration. It is impossible to foretell whether renal decompensation, cardiac decompensation or another cerebral accident will terminate this man's life.

The management of his tachycardia can be guided only by data which are not available. With the acceleration of pulse following vagal paralysis there may have been changes in the arterial tension which would modify the suggestions. If his pulse does not become more rapid it might be wise to do nothing about it, for the time being at least. Attention to the renal aspects of the situation is of the utmost importance; particularly efforts should be continued to maintain the hemoglobin concentration of the blood at as high a level as possible. With the extensive paralysis the patient is of necessity quiet. Although he is grossly overweight, there is hardly justification in expecting weight reduction to accomplish anything. An adequate supply of dextrose for the myocardium is vitally necessary. Digitalis can be used if its effects are carefully watched; it does not cause an increase in the arterial tension. However, there is no evidence in the query that the relative tachycardia is a sign of myocardial exhaustion. Oxygen inhalation would tend to slow the pulse, but unless the situation gets acutely worse the present pulse of 105 hardly warrants its continuous administration.

LIGHTNING CLEANER

To the Editor:—An industrial cleansing fluid sold under the name of Lightning Cleansing Fluid, distributed by the Mortemoth Company, Milwaukee, has been causing rather distressing symptoms of nausea, epigastric pain, vertigo and drowsiness. I should appreciate a report of its contents with a statement as to its organic effects, temporary or permanent, if any.

M.D., North Carolina.

ANSWER.—The Mortemoth Company appears to manufacture or distribute a variety of cleaning agents, fumigants and insecticides. The product mentioned apparently is "Lightning Cleaner" for use in fur and lining cleaning. This product is referred to in promotional literature as "a balanced combination of cleaning solvents especially prepared for the fur trade." Further it is described as nonexplosive and without fire risk. Without knowing the exact composition it is inferred from the statement as to nonflammability that this cleaner contains one or more chlorinated hydrocarbons. Carbon tetrachloride is typical of the chlorinated hydrocarbons found in this type of cleaning agent. Manifestations mentioned in the query are somewhat characteristic of the action of chlorinated hydrocarbons. The symptoms suggest only comparatively minor injury but some chlorinated hydrocarbons are capable of producing direful and acute manifestations centering about damage to the liver. The clinical manifestations and associated pathologic changes are similar to those of acute chloroform poisoning—chloroform itself being a chlorinated hydrocarbon. No chronic form of the disease is known but persistent sequels from acute poisoning may arise. In view of the limited information furnished in the query and in view of the lack of precise analysis of the product in question, no definite stand can be taken as to either diagnosis or preventive measures, but the entire situation suggests an injurious action from chlorinated hydrocarbons calling for prompt preventive steps.

POSSIBLE NEUROSYPHILIS: TREATMENT

To the Editor:—In May 1937 a baker complained of insomnia, lack of ambition, numbness of the hands and feet (the latter especially if sitting still for some time or at night), sour eructation, not especially at meals, and belching gas. He also had an occasional dizzy spell after standing up. He has had these symptoms for several months. He had supraorbital headaches for three weeks. One year earlier he had typhoid injections followed by sudden diplopia and internal squint of the left eye. In March 1937 an optometrist who examined his eyes told him that no improvement could be made in his lenses and that there must be some general toxic condition causing his double vision. The diplopia is worse in the evening after he becomes tired. The optic nerve and fundus are apparently normal. In 1933 he had ulcers of the mouth and tongue; in May 1936 all his teeth were removed because of abscesses and pyorrhea. He does not remember having any sores. His wife died in 1930 at 32 of myocardial failure and possibly hypertension. She has had two children, now 7 and 8 years old, whose blood tests are negative. There have been no miscarriages. The patient has slight receptive deafness of the left ear; his hearing has been defective for twenty years. He had carbuncles in 1928. Physical examination showed a blood pressure of 125 systolic and 95 diastolic. There were no other abnormalities in the heart, lungs or abdomen except that there was a slight general alopecia, the pupils do not react to light, and the right pupil is slightly irregular in contour and slightly larger than the left. He has had a thick yellow postnasal discharge for five years. The knee jerks are normal, equal bilaterally; there is no Romberg sign and no tremor. The Wassermann and Kahn reactions were 4 plus. Since the beginning of treatment he has had three courses of twelve injections each of 0.6 Gm. of neoarsphenamine alternating with injections of three courses of 1 cc. of bismuth subsalicylate. The first course of bismuth consisted of seven injections of 1 cc. (2 grains). The second course consisted of twenty-four and the third of fourteen injections. The bismuth subsalicylate was alternated with neoarsphenamine in continuous treatment. He has also had potassium iodide continuously since May 1937: 15 grains (1 Gm.) daily up to a few months ago, when it was increased to 24 grains (1.5 Gm.) daily. Under this treatment the double vision improved slightly. He still has a moderate amount of internal squint of the left eye, but the knee jerks are 4 plus and equal; there is no Romberg sign. The finger to nose test is negative. May 18, 1938, the blood Wassermann reaction was 3 plus, the Kahn reaction 4 plus. The first spinal fluid examination was made June 26. The colloidal gold reading was 0000000000, the Wassermann reaction 2 plus, Pandy's test questionable. There was no apparent increase in pressure, the fluid was clear in color and it contained one white blood cell per cubic millimeter. The patient is somewhat nervous and irritable; however, he has a steady gait and a clear mind and his memory is normal. 1. What further treatment is indicated? Has the patient neurosyphilis? 2. Does the colloidal gold or the globulin test or the positive spinal Wassermann reaction determine the presence of neurosyphilis? 3. Is tryparsamide or mapharsen indicated here? 4. Is the patient considered Wassermann fast? If so, is Wassermann fastness of any significance? 5. How long do you believe this patient has had syphilis? Where are the lesions of syphilis in this case?

M.D., Connecticut.

ANSWER.—These questions are of the type that cannot be answered by yes or no, as some of them include problems of syphilology that require considerable discussion. Neither are the data given with regard to the patient sufficient to make the answers conclusive.

1. The patient has been given in a little over a year thirty-six injections of neoarsphenamine and forty-five injections of a bismuth compound and some potassium iodide, apparently followed by definite improvement. However, as some of the symptoms have persisted, it would seem advisable to continue the treatment with at least two more courses of neoarsphenamine and at least four more courses of a bismuth compound. Even though the spinal fluid examination is not conclusively positive, the diagnosis of neurosyphilis seems justifiable in view of the other manifestations. The spinal fluid was examined apparently after considerable treatment had been given, which fact may explain the type of spinal fluid report obtained. If the fluid had been examined before treatment was started, the report might have been strongly positive. The clinical signs are suggestive of neurosyphilis of the meningovascular type.

2. A spinal fluid examination to be adequate should consist of the following tests: a cell count done immediately at the time of the withdrawal of the fluid; a flocculation or precipitation test; a colloidal gold test; globulin, protein and sugar estimations, and a pressure reading. The cell count is the most significant single test done on the fluid in the examination for syphilis, with the serologic test and the colloidal gold test following in that order. The degree of positivity of the various tests creates the picture of the positive spinal fluid as being of mild, moderate or severe degrees of positivity. One spinal fluid examination, however, does not warrant deduction as to the degree of neurologic involvement in a given case. It is only by repeated spinal fluid examinations that the severity of the spinal fluid involvement can be accepted as authentic. For example, the typically paretic type of fluid in a patient who has mild or early signs of neurosyphilis does not mean that the patient has dementia paralytica or that later on he will develop it. The same idea is applicable to a negative spinal fluid in the

presence of suggestive clinical symptoms of neurosyphilis. Further treatment, with observations of the patient and several more spinal fluid examinations, are usually necessary to settle such an issue conclusively.

The presence of a positive globulin test with all other tests of the spinal fluid negative is of no significance. Similarly, a colloidal gold curve of the syphilitic or paretic type is of no diagnostic significance if all the other factors are normal. In brief, it is the ensemble of the degree of positivity or negativity of the tests that creates the picture of a negative or positive report.

3. Tryparsamide might be used to advantage in this case if examination of the eyegrounds shows no abnormalities. If tryparsamide is used it should be given in series of ten injections with a similar amount of a bismuth compound given concurrently. There should be a rest period of two months between courses. Mapharsen would probably not be any more effective than the other arsphenamines.

4. It is too early to determine whether this patient is "Wassermann fast," and the question as to whether he has neurosyphilis must be settled before the patient can be classified as "Wassermann fast." If the serologic reaction of the blood remains positive in a patient who has neurosyphilis, the use of the term "Wassermann fast" is not justifiable because the involvement of the nervous system is the explanation for the persistence of the positive serologic reactions of the blood. The term "Wassermann fast" is limited to those patients who have no clinical evidence of visceral or neurologic syphilis and who have a negative spinal fluid. It is a better practice to think in terms of the status of the syphilis rather than in terms of the status of the serologic reaction, because not infrequently a so-called Wassermann fast patient is in the process of developing manifestations of syphilis that will become clinically obvious if he is observed long enough. On the other hand, the occasional patient is encountered who will maintain a positive blood reaction for many years and never show clinical evidence of late manifestations of the disease.

5. It is impossible to guess the duration of the syphilis. The inference from the data submitted is that if this patient has neurosyphilis it is of the meningovascular type with the vascular involvement predominating.

LABYRINTHINE VERTIGO

To the Editor:—A white man aged 61 has had vertigo for the last two years. He has had three attacks lasting about a week. Ordinarily he is active and works hard but during these episodes of vertigo he is utterly incapacitated for at least a week. There is no syncope, scotoma or tinnitus. He says that it is usually on changing position, on arising in the morning particularly, that he experiences the most discomfort. His present attack is associated only with vertigo but his last attack a year ago was marked also by a violent headache, which he described as a "tightening and pulling sensation on the back of his head and neck." He had gonorrhea thirty years ago and some chronic gastrointestinal complaints, which were corrected by attention to diet and bowel hygiene. His appetite is good; he drinks a small cup of coffee and a glass of wine occasionally but uses no tobacco. He is well developed and well nourished, weighs 170 pounds (77 Kg.) and is 6 feet (183 cm.) tall. The eyes, ears and throat are normal. Some nasal obstruction is present as the result of a poorly performed submucous resection many years ago. The lung fields are clear. The heart is slightly enlarged to the left (0.5 cm.) and there is a transient systolic blow heard at the apex, which is not transmitted. His blood pressure has never been higher than 113 systolic. The diastolic pressure varies between 60 and 70. During the last seizure his blood pressure dropped to 96 systolic and 58 diastolic. The peripheral vessels are definitely sclerosed. The pulse is 60, hard, full and regular. Enlargement of the abdominal viscera is absent. The lower extremities are normal except for some varicosities. Two years ago at the onset of the illness the patient was seen by an internist, who had a complete work-up done on him. He was also seen by an ophthalmologist, an otolaryngologist and a neurologist. The results of these examinations were pooled and a diagnosis of arteriosclerosis of the labyrinthine vessels was made. He was placed on a diet, wine and coffee were forbidden, and iodides were given orally. At the time blood Wassermann, blood count, chemistry urinalysis and electrocardiogram were all negative. What other phases of this man's illness should be investigated? What else ought to be excluded? What form of therapy is best applicable? What is the opinion with regard to the use of strychnine, ephedrine and thyroid preparations in a case such as this? How long should the regimen be kept up if instituted?

M.D., Brooklyn.

ANSWER.—The symptom as described is suggestive of some labyrinthine irritation of one or both labyrinths. Its rotational character and its aggravation by sudden movements of the head would also point to the same cause. If the eyes were observed during the attacks, a mild rotatory nystagmus might be noticed. The unusually low blood pressure as well as the drop in the latter to 96 systolic during the attacks would also point to a circulatory disturbance in the labyrinths.

The statement that the otolaryngologist's report was negative does not indicate the type of examination done which proved to be negative. For instance, an audiometric reading of both ears which may show loss of hearing in the high pitch register, combined with a reduction in responses to the caloric test of the vestibular apparatus from the vertical canals (with the head in the upright position), may point still further to circulatory involvement in the labyrinth. The vestibular tests should be done in all cases of vertigo, as occasionally a perverted response may point to possible intracranial disturbance.

The observations in this patient, however, seem to point to a Ménière syndrome due to circulatory disturbance. Foci of infection such as the teeth and tonsils should definitely be eliminated.

Treatment should be directed toward keeping the blood pressure at a higher level. The drugs mentioned do not seem to possess any specific action for vertigo. If the attacks become more frequent, the Furstenberg regimen should also be instituted: elimination of sodium chloride from the diet and the administration of large doses of ammonium chloride 3 Gm. (45 grains) in six capsules with each meal three times a day. This is given for three days and skipped for two days. If relief is obtained this regimen may be carried on indefinitely.

ACRODYNIA OR INFECTION?

To the Editor:—A white boy aged 9, 4 feet 4 inches (132 cm.) tall, weighing 75 pounds (34 Kg.) is pale and thin. He had no definite area of discomfort but looked acutely ill. The temperature was 102.2 F., the pulse rate 110 to 120. Physical examination showed definite photophobia, normal eyesight, the inferior palpebral conjunctivae slightly injected on both sides. The ears, mouth and pharynx were normal. The tonsils were out. The lungs were clear and normal. There was tachycardia; no murmurs were present. The abdomen was soft, the spleen not palpable. There were no tender areas on the abdominal wall. The kidneys were negative to palpation. The skin was moist and pale. The hair was of light color. Neurologic examination showed no nystagmus; the abdominal reflexes were present. There were no pathologic reflexes and no tremor. There was active sweating. Blood pressure was 120 systolic, 70 diastolic. The patient's history included measles, chickenpox, pertussis, mumps, grip and allergy to several foods. The mother tells of the complaints of headache, fatigue, anorexia and pains in the leg muscles, which started a week before my visit and were mildly present during visit. The patient perspires chiefly during the day, even when at rest; he has no night sweats. The temperature has been above normal for a week, often going to 101 and 102. There is no trouble with breathing except during epistaxis and there is no history of cough or dyspnea during this illness. The patient has a tendency to scratch himself, but no exanthems or cutaneous blemish has been noted. The patient is bright in school but shy of playmates. He literally "wants to be alone"; he sleeps a lot and is relatively inactive for a boy of his age and weight. His constant companion is his radio, which he keeps at a low pitch. He likes a darkened room and quiet. His first urine examination showed 1 plus albumin, some white blood cells, phosphate crystals and some bacteria. Another specimen of urine two days later was negative except for some hyaline casts. Later specimens of urine were negative. The hemoglobin is 80 per cent (Sahli), red blood cell count 3,700,000, white blood cells 9,100, neutrophils 68 per cent, eosinophils 1 per cent, lymphocytes 24 per cent, mononuclears 5 per cent, myelocytes 2 per cent. The Wassermann and Kahn reactions were negative. Tuberculin tests were negative (intracutaneous method). The child was treated for eight days, during which time his temperature and pulse came down to normal and he became active. Follow-up was uneventful. The therapy was alcohol sponge baths for excessive temperature; ammonium mandelate 5 grains (0.3 Gm.) every three hours by mouth for urine disinfection. Cod liver oil and brewers' yeast tablets were given in large quantities. Fluids were forced during the days with high temperature. Later a high caloric soft diet was given. Was this just a mild infection of the genito-urinary system (probably pyelitis) or the not too well known Swift-Feer disease? What would be the latest therapy of the latter?

ROBERT SCHWARTZ, M.D., Jamaica, N. Y.

ANSWER.—Most cases of Swift-Feer disease, or acrodynia, occur between the ages of 6 months and 3 years, rarely after 6 years of age. The common symptoms of acrodynia are insidious onset, listlessness and apathy or irritability and restlessness. The child will no longer play or smile. The appetite is poor. There is little if any fever unless intercurrent infections develop. The hands and feet are pink or cyanotic, the changes being more marked in the fingers and shading off gradually toward the wrist; pain, itching and burning occur to a marked degree in them. Transitory rashes appear on the trunk and extremities which may resemble urticaria, measles or scarlet fever. The disease lasts for several months. Excessive perspiration is marked and macerates the skin. Desquamation of the palms and soles occurs at frequent intervals. The child is a picture of abject misery. Photophobia is usually present. There is definite weakness of the musculature. The systolic pressure rises even in small children to from 120 to 150. The pulse is fast. The deciduous teeth frequently fall out. Insomnia and

constant tossing about and rubbing of the hands and feet are present. Maniacal symptoms may occur. As the disease progresses, the patellar reflexes are lost.

Regarding treatment there is nothing specific, as the etiology is unknown. Large doses of sedatives are necessary to control the extreme restlessness, pain and insomnia. Soothing lotions are used on the skin. Atropine in large doses lessens the excessive perspiration. Frequent baths and proper mouth hygiene are necessary. The diet must be forced because of the severe anorexia, even gavage feeding occasionally being necessary. A high vitamin diet is indicated, particularly in vitamin B complex and D and liver. Some have advocated ultraviolet rays. Patients should be kept out of hospitals because of the great danger of intercurrent infections.

It would seem that the patient described did not have acrodynia because too many of the classic symptoms were absent. He apparently did not have pyuria, as this is rare in a boy of this age and the one pathologic urine might be found in any febrile condition. In febrile pyuria (pyelitis) the fever subsides some days before the urine clears up, which was the opposite in this case.

The symptom complex described could have been an ordinary grippal infection even without obvious respiratory involvement, or a mild typhoid or paratyphoid infection even without enlargement of the spleen, or even a mild rheumatic fever even without a heart murmur, or a rarer condition such as malaria or undulant fever.

ANGINA PECTORIS OR ANXIETY NEUROSIS

To the Editor:—A white man aged 38 complains of intermittent precordial pain and oppression radiating down the left arm and up the left side of the neck. He also complains of fatigue, lassitude and "lack of pep" and states that late in the afternoon and early in the evening he becomes sleepy. This has been going on with remissions for the last three years. Physical or mental activity do not seem to influence these complaints much. He is a WPA engineer and his duties require him to drive about 110 miles several times a week. His wife has an arrested case of pulmonary tuberculosis. He has three children alive and well. He uses tobacco in the form of cigarets in moderation and alcoholic beverages in periodic sprees, although he states that at present he takes a cocktail only occasionally. He had "nervous breakdowns" at 15 and 24 and says that nervousness seems to run in his family. His appetite is usually good, although he has had some gastrointestinal distress, such as gas, bloating and occasional heartburn. He weighs 200 pounds (91 Kg.) and is 5 feet 11 inches (180 cm.) tall. His weight has come down 4 pounds (1.8 Kg.) in the last month (I have put him on a 1,200 calory reduction diet). His blood pressure has ranged from 160/102 to 130/88. The rest of the examination is essentially negative except for the heart, which shows a slight enlargement to the left and downward and also a moderate accentuation of the second aortic sound. There are no murmurs; the pulse rate is 82 per minute and is regular. The Kahn reaction of the blood is negative, as is urinalysis. A basal metabolism test taken recently was plus 13 per cent. The fasting blood sugar is 90. My impression was that of a mild or perhaps pseudo-angina, with a possible hyperthyroid condition, mild hypertension, obesity and psychoneurosis. I have had him on theophylline with ethylenediamine, 1½ grains (0.1 Gm.) three times a day after meals, elixir of phenobarbital 1 drachm (4 cc.) three times a day; glyceryl trinitrate 1/100 grain (0.00065 Gm.) if necessary, and his reduction diet. He has been on this regimen a little over a month with no apparent improvement in his complaints. He has considerable financial worries and now is worrying about his physical condition despite my assurances that he will probably outlive me. I have hesitated to use benzedrine sulfate tablets for his extreme lassitude because of his anginal symptoms and mild hypertension. Cessation of the phenobarbital does not improve this troublesome complaint. I would appreciate any suggestions you can give me as to diagnosis and treatment.

M.D., West Virginia.

Answer.—One cannot lightly dismiss the probability of angina pectoris. Unfortunately there is no positive method for proving or disproving such diagnosis. There are certain points in the history which throw some doubt on this diagnosis. The fact that the distress is uninfluenced by physical or emotional strain does not fall in line with angina pectoris. Anginal pain is far more often substernal than precordial. The failure of glyceryl trinitrate to give relief interposes another obstacle to a definite diagnosis of angina pectoris.

The hypertension plus a moderate cardiac enlargement justify a diagnosis of mild hypertensive disease, but a basal metabolic rate of only plus 13 per cent without tachycardia and with obesity and somnolence does not offer secure ground for a diagnosis of hyperthyroidism.

If one were to disregard the pain, it seems that a diagnosis of psychoneurosis, probably an anxiety neurosis, with mild hypertension would be quite justified. Indeed, the pain may be a part of the psychoneurosis. The background of nervousness adds weight to such an assumption.

It would seem logical to manage this case as an anxiety neurosis, at the same time guarding against anything that would be detrimental to angina pectoris.

The use of theophylline with ethylenediamine or one of the other purine base compounds should be continued because of its probable beneficent effect on the hypertensive heart disease, since compounds of this nature exert a mild diuretic and cardiac stimulating action. The general management of anxiety neurosis may be found in any good textbook dealing with the subject.

HIRSUTISM IN YOUNG WOMAN

To the Editor:—A woman aged 25 had a supravaginal hysterectomy two and one half years ago for chronic metritis and endometritis with menorrhagia, metrorrhagia and secondary anemia. The artificial menopause thus induced has been attended with some of the milder endocrine manifestations, but her general health has been good. In recent months she has noticed an increasing hypertrichosis or hirsutism, which is becoming conspicuous on the face and soon may interfere with her occupation as saleswoman. What is the latest knowledge about the arrest or correction of this condition? It is my impression that endocrine imbalance incident to the operation may be causative. In The Journal, Jan. 1, 1938, page 84, an abstract from the *Münchener medizinische Wochenschrift* reports the efficacy of an ointment containing estrogen in the treatment of ovarian dermatoses. Have you any report of the use of such a preparation in hypertrichosis in the female?

M.D., California.

Answer.—The inquirer speaks of this as an artificial menopause. If the operation was only a supravaginal hysterectomy, the woman does not have an artificial menopause but only cessation of menstruation as the result of removal of the uterus and its endometrium. To produce an artificial menopause, both ovaries must be removed or their function must be destroyed by x-rays, interference with their blood supply or other means.

The development of hypertrichosis or hirsutism on the face is a separate condition and bears no relation to the supravaginal hysterectomy except possibly indirectly. It is possible that the excessive preoperative uterine bleeding which this woman experienced and her hirsutism could have been influenced by a like cause; viz., disturbance of the adrenal cortex.

The excessive bleeding may have been due to a chronic pelvic inflammation or to a uterine fibroid. If these conditions are ruled out, one must consider the possibility of disturbance of any one or any combination of the four endocrine factors which are responsible for the normal menstrual cycle; viz., the follicle stimulating and the luteinizing hormones of the anterior pituitary and the estrogenic and luteal hormones of the ovary.

There are at least four endocrine conditions that may be responsible for masculinization of the female, of which hirsutism may be a prominent feature. The first of these is an adrenal cortex tumor or hyperplasia with consequent hyperfunction. Reichstein (*Helvet. chim. acta.* **19**:223, 1936) isolated an androgenic hormone from the adrenal glands that stimulates the masculine characteristics in the male and masculinizes the female. He named this adrenosterone. Removal of cortical tumors in women have been followed by reversion to normal.

The second condition in which hirsutism may be an accompanying sign is pituitary basophilism. This condition is almost always associated with disturbance of the adrenal cortex, but the two syndromes differ sufficiently to indicate that while they may be related they are not identical.

The third condition that may produce hirsutism is an arrhenoblastoma of the ovary which contains male testicular tissue.

The fourth source of hirsutism may be a heterosexual gonadal rest in the parovarian gland, which, with the decline of the primary gonadal function, may take on fresh activity in the direction of the opposite sex. This is more apt to occur at the menopause.

It should not be difficult to rule out pituitary basophilism. An arrhenoblastoma should produce some evidences of masculinization, such as enlargement of the clitoris, masculine type hair growth and amenorrhea. Menstruation is excluded in this case since the operation, but because of the fact that this girl had excessive uterine bleeding it militates against a diagnosis of arrhenoblastoma. Hirsutism produced by reactivation of masculine rests in the parovarian gland usually occurs at the menopause and not in young women and again should be associated with amenorrhea.

The most probable diagnosis in this case is tumor, hyperplasia or hyperfunction of the adrenal cortex. A moderate degree of hirsutism in women is not uncommon. There are many young women who have heavy, coarse hair on their legs and forearms which they shave, a moderate hair growth on the lower part of the abdomen to the umbilicus and some on the upper lip and chin over the zygomatic arches. However, if the condition is pronounced, the adrenal glands may be visualized by roentgenograms made after injection of air into

the perirenal fascial space. This procedure is of doubtful value unless a fairly large tumor is present, and it may be accompanied by sudden and alarming complications. Bilateral exploration of the adrenals through incisions in the upper posterolateral lumbar regions can be done, but this is a serious operation when no definite evidence is at hand.

There is no endocrine treatment available, for in these instances there is probably a hyperfunction to treat and unless the tumor, if present, or the offending gland can be partially removed, there is not much hope for success.

WHEAT GERM OIL IN THREATENED ABORTION

To the Editor:—I am anxious to give the wheat germ oil treatment for threatened abortions a fair trial, but on account of the expense of adequate doses many of my patients cannot afford it, and if it must be fresh and kept cold I often wonder whether my patients get a potent product when they do buy it. Can you outline a diet for pregnant women to use during the entire pregnancy so that they will not need any of this extra vitamin? What about wheat germ that is sold at the health counters?

C. E. CASWELL, M.D., Wichita, Kan.

ANSWER.—The use of wheat germ oil in the treatment of women who have repeated abortions has found favor with some clinicians. There is now considerable evidence to indicate that the addition of vitamin E is beneficial to some of these patients. There is less evidence as to the value of treating threatened abortions with vitamin E. Usually if symptoms of threatened abortion manifest themselves, particularly bleeding, pathologic changes have already taken place in the ovum or in the chorionic vesicle incompatible with the continuation of the normal gestation. The addition of vitamin E to the diet, therefore, should be instituted early in the pregnancy in cases of habitual abortion and can be continued to viability of the fetus. Wheat germ oil should be kept cold to prevent deterioration. Green foods, such as lettuce and watercress, milk and milk products, are rich sources of vitamin E. It has been suggested, however, that some individuals have difficulty in assimilating a sufficient amount of this substance from their diets so that additional vitamin E is advisable. The Council on Pharmacy and Chemistry has not accepted any claims for vitamin E for this or any other purpose.

PSEUDOHERMAPHRODISM

To the Editor:—I delivered a pseudohermaphrodite on March 14, 1938. The child is the ninth baby of American parents, the father being a lease worker in the oil field. Both parents are of average intelligence and the other eight children are all living and perfectly normal. The pregnancy was uneventful and delivery was accomplished easily and normally eight hours after onset and without laceration. The birth weight was 7½ pounds (3,315 Gm.). The child is perfectly normal in every way except as to the genitals: On either side of the midline, occupying the site of the labia majora, is an area of wrinkled and creased scrotal skin, somewhat pouched, each containing a movable mass the size of an olive seed. These two areas merge over the pubic site, forming an inverted U shaped arrangement. Emerging from the lower curve or the inner curve of the U is a structure which a casual glance would call a penis. It is considerably larger than the normal penis of a newborn baby with well developed glans, about one third of which was covered with prepuce. A small mastal dent appears at the normal site of a penile meatus, but there is no urethra-like passage in the structure. This fact, with the small amount of prepuce, identifies the structure as a clitoris. It further occupies the site of the normally placed clitoris, being below the mons and where the anterior ends of the labia minora would join if they were present. The dark area lying posterior to the cliteropenile structure is covered only with mucosa and is so fragile that the merest touch will cause bleeding. It is kept constantly protected with petrolatum gauze. It looks as though a vagina had been completely turned inside out. Through a canal the urine comes freely. A fold of the mucous-covered tissue conceals a sphincterless anal opening. Considering these two openings as opposite angles of a rectangle, the two remaining angles mark blind passages. The one opposite the anal opening, posteriorly, is about 1 inch deep and would receive the eraser end of a lead pencil. The anterior one is smaller both in depth and in diameter. About twenty physicians in the surrounding country have seen the child, and the consensus seems to be that we must await the adolescent development of sex and genital characteristics before even a tentative decision as to sex can be made. This being the case, how shall the child be denominated during that interim—Jim or Jemima? More important just now, however, is what can and should be done to cover and protect the skinless area, which is of considerable extent.

M.D., Pennsylvania.

ANSWER.—The description undoubtedly justifies the diagnosis of masculine external pseudohermaphrodism as evidenced by the presence of a rudimentary vagina, transformation of labia majora into scrotal-like structures in which a mass, presumably testes, is palpable, and an elongated penis-like clitoris. Management of this case should largely depend on whether or not internal female sex organs are present. No mention has been made of whether or not a rectal examination reveals the presence of internal female sex organs. If rectal examination is unsatisfactory, a pneumoperitoneum may be necessary to establish the presence of such organs. Finally, laparotomy may be justified as a final diagnostic measure. If the presence of ovaries is established, removal of both testes and plastic restoration of the vagina would be indicated. In this way a definite female tendency would be established. If no ovaries are to be found, it would seem wiser to leave the testes in situ and thus establish a definite male tendency. Operative details may be found in Hugh Young's book on pseudohermaphrodism.

If no operation was performed, the possible presence of both male and female generative organs doubtless would lead to the pitiful picture of the fully developed intersex, combining both male and female secondary sex characteristics. Much consideration should be given to the time to be chosen for the operation. There is no doubt that a prepubertal operation would give much better chances as to final sexual development. The presence of functioning opposite gonads would definitely suppress such development.

As it seems desirable to establish a definite sex before onset of school age, an operation just before that time would seem desirable. At that time anatomic development is far enough along to establish a better diagnosis and facilitates delicate plastic surgery.

If, however, what appears to be a prolapsed vagina should give rise to inflammatory or other complications, surgical procedure at a much earlier date would be justified.

BLOOD IODINE DETERMINATIONS

To the Editor:—I am interested in instituting blood iodine determinations in connection with thyroid work. What method of procedure is most suitable to the needs of a relatively small diagnostic laboratory? It has been my understanding that most of the procedures now in use do not meet this specification, being both expensive and exceedingly complicated.

J. M. FEDER, M.D., Anderson, S. C.

ANSWER.—The determination of the content of iodine in the blood can now be performed in the clinical laboratory. A certain amount of practice and experience is necessary, however, before the results obtained can be used for clinical diagnosis. A clinical method, the result of ten years of hospital experience, has recently been reported (Matthews, N. L.; Curtis, G. M., and Brode, W. R.: Determination of Iodine in Biological Materials, *Indust. & Engin. Chem., Anal. Ed.* **10**:612 [Oct. 15] 1938) which requires about three hours to make half a dozen blood iodine analyses. The special apparatus required costs about $50 but it can be made by a good glass blower. The reagents are such that a single analysis costs about 12.5 cents. While it is true that in the past these methods have been expensive and quite complicated, this newer method is simpler and particularly adapted to the clinical laboratory.

DIVISION OF ILIOFEMORAL BAND

To the Editor:—I should appreciate whatever references you may have concerning the technic and indication for division of the iliofemoral band. This is sometimes called the Ober operation.

G. H. WISENER, M.D., Richmond, Ind.

ANSWER.—Complete details of the technic and indication for division of the iliofemoral band may be found in the following three articles:

Ober, F. R.: Back Strain and Sciatica, THE JOURNAL, May 4, 1935, p. 1580.
Ober, F. R.: The Role of the Iliotibial Band and Fascia Lata as a Factor in the Causation of Low-Back Disabilities and Sciatica, *J. Bone & Joint Surg.* **18**:105 (Jan.) 1936.
Ober, F. R.: Relation of the Fascia Lata to Conditions in the Lower Part of the Back, THE JOURNAL, Aug. 21, 1937, p. 554.

PYLORIC STENOSIS IN GIRLS

To the Editor:—Lately I have heard two recent graduates from different medical schools say that pyloric stenosis in children is confined to boys. Since I had in the past two girls who were diagnosed as having pyloric stenosis in a large medical clinic, I should like to know whether this is at present the accepted opinion or whether it is the opinion of an individual investigator.

M.D., Pennsylvania.

ANSWER.—Pyloric stenosis is not confined to boys, but 80 per cent of the cases occur in males and 20 per cent in females. Sometimes the proportion is given as three to one instead of four to one. For further information on this subject consult the following references:

Abt, I. A., editor: Pediatrics, Philadelphia, W. B. Saunders Company **2**:453, 1924.
Brenneman, Joseph, editor: Practice of Pediatrics, Hagerstown, Md. **2**:11 (chapt. 5) 1936.
Griffith, J. P. C., and Mitchell, A. G.: The Diseases of Infants and Children, Philadelphia, W. B. Saunders Company, 1937, p. 561.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, Jan. 3-5 and June 20-22. Sec., Dr. J. N. Baker, 517 Dexter Ave., Montgomery.

ALASKA: Juneau, March 2. Sec., Dr. W. W. Council, Box 561, Juneau.

ARIZONA: Phoenix, Jan. 3-4. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: *Medical (Regular).* Little Rock, June 8-9. Sec., State Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, 317 State Line, Texarkana. *Medical (Eclectic).* Little Rock, June 8-9. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

COLORADO: Denver, Jan. 4-6. Sec., Dr. Harvey W. Snyder, 831 Republic Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, Feb. 11. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical (Regular).* Hartford, March 14-15. *Endorsement.* Hartford, March 28. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Medical (Homeopathic).* Derby, March 14. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Dover, July 11-13. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, Dec. 26-27. *Medical.* Washington, Jan. 9-10. Sec., Commission on Licensure, Dr. George C. Rubland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 19-20. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June. Joint Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

HAWAII: Honolulu, Jan. 9-12. Sec., Dr. James A. Morgan, 48 Young Bldg., Honolulu.

IDAHO: Boise, April 4-7. Dir., Bureau of Occupational License, Mr. D. B. Cruikshank, Rm. 335, State Capitol Bldg., Boise.

ILLINOIS: Chicago, Jan. 24-26. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 20-22. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

IOWA: *Basic Science.* Des Moines, Jan. 10. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MAINE: Portland, March 14-15. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: Boston, March 14-16. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: Ann Arbor and Detroit, June 14-16. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 100 W. Allegan St., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, Jan. 3-4. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, Jan. 17-19. Sec., Dr. Julian F. DuBois, 350 St. Peter St., St. Paul.

MONTANA: Helena, April 4-5. Sec., Dr. S. A. Cooney, 216 Power Block, Helena.

NEBRASKA: *Basic Science.* Omaha, Jan. 10-11. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: *Reciprocity and oral examination.* Carson City, Feb. 6. Sec., Dr. John E. Worden, Capitol Bldg., Carson City.

NEW HAMPSHIRE: Concord, March 9-10. Sec., Board of Registration in Medicine, Dr. Fred E. Clow, State House, Concord.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, April. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 23-26. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 19. Sec., Dr. William D. James, The Hamlet Hospital, Hamlet.

NORTH DAKOTA: Grand Forks, Jan. 3-6. Sec., Dr. G. M. Williamson, 414½ S. Third St., Grand Forks.

OREGON: *Basic Science.* Portland, Feb. 25. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia, Jan. 3-7. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, 400 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, March 7. Sec., Dr. O. Costa Mandry, Department of Health, San Juan.

RHODE ISLAND: Providence, Jan. 5-6. Chief, Division of Examiners, Mr. Robert D. Walsh, 366 State Office Bldg., Providence.

SOUTH DAKOTA: Pierre, Jan. 17-18. Director of Medical Licensure, Dr. B. A. Dyar, State Board of Health, Pierre.

VERMONT: Burlington, Feb. 14. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

WASHINGTON: *Basic Science.* Seattle, Jan. 5-6. *Medical.* Seattle, Jan. 9-11. Dir., Department of Licenses, Mr. Harry C. Huse, Olympia.

WEST VIRGINIA: Charleston, March 6-8. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: Madison, Jan. 10-14. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

WYOMING: Cheyenne, Feb. 6. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, December 17, page 2328.

Illinois June-July Examinations

Mr. Homer J. Byrd, superintendent of registration, Illinois Department of Registration and Education, reports the written examination (graduates of foreign schools given also a practical test) held in Chicago, June 28-July 1, 1938. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. Three hundred and twelve candidates were examined, 307 of whom passed and five failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine		(1937)	81
College of Medical Evangelists		(1938)	83
Chicago Medical School		(1936)	81,
	(1937) 75, (1938) 78, 80, 80, 80, 81, 81, 81, 81, 81, 81, 82, 82, 82, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 84, 84, 84, 84, 85, 85, 85, 85, 85, 85, 85, 85, 85, 86, 86, 87, 89, 90		
Loyola University School of Medicine		(1936)	83,
	(1937) 83, (1938) 76, 78, 78, 78, 79, 79, 79, 79, 79, 79, 80, 80, 80, 80, 80, 80, 81, 81, 81, 81, 81, 82, 82, 82, 82, 82, 82, 82, 82, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 85, 85, 86, 86, 86, 86, 86, 86		
Northwestern University Medical School		(1934)	84,
	(1937) 80, 80, 83, 84,* (1938) 79, 79, 80,* 81, 81, 81, 82, 82, 82, 83, 83, 84, 84, 84, 84,* 85, 85, 85, 85, 87, 87, 88, 88, 88*		
Rush Medical College		(1936)	83,
	(1937) 78, 80, 80, 80, 81, 81, 81,* 82, 82, 82,* 83, 83, 83, 83, 84, 84, 85, 85, 85, 86, 86, 86, 87, 87, 88, 88, 88, 89		
School of Medicine of the Division of Biological Sciences		(1934)	85,
	(1937) 81, 83, 83, 83,* 84, 85*		
University of Illinois College of Medicine		(1938)	78,
	79, 79,* 80, 80, 80, 81, 81, 81, 81, 81, 81, 82, 82, 82, 82, 82, 82, 82, 82, 82, 82, 82, 82, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 83, 84, 84, 84, 84, 84, 84, 84, 84,* 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 86, 86, 86, 86, 86, 86, 86, 86, 86, 86, 86, 86,* 87, 87, 87, 87, 87, 87, 87, 87, 88, 88, 90		
Indiana University School of Medicine		(1937)	82*
Johns Hopkins University School of Medicine		(1935)	82
Harvard University Medical School		(1937)	84
St. Louis University School of Medicine		(1937)	81, 81
Creighton University School of Medicine		(1937)	79
New York University and Bellevue Hospital Medical College		(1934)	83
University of Pennsylvania School of Medicine		(1936)	82
Meharry Medical College		(1935)	81
Marquette University School of Medicine		(1938)	81, 81
University of Toronto Faculty of Medicine		(1937)	83,* 86
McGill University Faculty of Medicine		(1937)	82
Université de Paris Faculté de Médecine		(1936)	76
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1924) 81, (1929) 78, (1934) 84, (1936)	76, 80, 83
Schlesische Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau		(1926)	83
Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultása, Budapest		(1926)	82
Regia Università degli Studi di Palermo. Facoltà di Medicina e Chirurgia		(1929)	76
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1936)	76*
Universität Basel Medizinische Fakultät		(1935)	82, (1936) 81
Universität Bern Medizinische Fakultät		(1937)	78

School	FAILED	Year Grad.
Chicago Medical School		(1922), (1937)
University of Michigan Medical School		(1937)
Regia Università degli Studi di Bologna. Facoltà di Medicina e Chirurgia		(1936)
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1936)

Thirty-six physicians were successful in the practical examination held for reciprocity and endorsement applicants in Chicago, June 30. The following schools were represented:

School	PASSED	Year Grad.	Reciprocity with
Univ. of Arkansas School of Medicine	(1935), (1936),	(1937)	Arkansas
George Washington University School of Medicine		(1918)	Dist. Colum.
Georgetown University School of Medicine		(1935)	Penna.
Rush Medical College		(1936)*	Michigan
University of Illinois College of Medicine		(1935)	Michigan
Keokuk Medical College, Iowa		(1908)	Iowa
State University of Iowa College of Medicine		(1935)	Iowa
University of Michigan Department of Medicine and Surgery		(1908)	Michigan
University of Michigan Medical School		(1916), (1934)	Michigan
St. Louis Univ. School of Medicine		(1936), (1937), (1937)*	Missouri
Washington University School of Medicine		(1933), (1937), (1937)*	Missouri
University of Nebraska College of Medicine		(1936), (1937)	Nebraska
University of Buffalo School of Medicine		(1932)	Penna.
University of Oklahoma School of Medicine		(1934)	Oklahoma
University of Oregon Medical School		(1931)	Oregon
Jefferson Medical College of Philadelphia		(1933)	Penna.
University of Pennsylvania School of Medicine		(1930)	Penna.
Meharry Medical College		(1928)*	Tennessee
University of Tennessee College of Medicine		(1935), (1937)	Tennessee
Baylor University College of Medicine		(1937)	Texas
University of Wisconsin Medical School		(1934)	Missouri

School	PASSED	Year Grad.	Endorsement of
College of Medical Evangelists		(1937)	N. B. M. Ex.
Northwestern University Medical School		(1934)	U. S. Army
University of Kansas School of Medicine		(1936)	N. B. M. Ex.
University of Maryland School of Medicine		(1906)	U. S. Army
Columbia Univ. College of Physicians and Surgeons		(1930)	N. B. M. Ex.
University of Buffalo School of Medicine		(1932)	N. B. M. Ex.

* License has not been issued.

Book Notices

Nutrition and Diet Therapy: A Textbook of Dietetics. By Fairfax T. Proudfit, Instructor in Nutrition and Diet Therapy, University of Tennessee College of Medicine, Memphis. Seventh edition. Cloth. Price, $3. Pp. 923, with 64 illustrations. New York: Macmillan Company, 1938.

The plan of the seventh edition of this book remains the same as in previous editions. Section one has to do with normal nutrition. Section two includes a series of laboratory lessons in the preparation of foods and diets. Laboratory lesson two, for example, comprises a discussion of the composition, structure and place in the diet of the cereals, followed by a cooking demonstration. Lesson four concerns foods that are rich in energy, including the carbohydrates and fats; this chapter opens with a discussion of bread making and the use of fats in the diet, followed by a cooking demonstration, for which the students are advised to divide into two or three groups, each making biscuits or muffins. Section three takes up diet therapy. Here is a tabulation of the different kinds of routine hospital diets—liquid diets, soft diet, light, regular, high-residue diet, bland, smooth residue diet, low residue diet, no residue, high calory diets, low protein diets, high fat diets, and so on. These chapters pertain to diets for use in different diseases: diet in pneumonia and other fevers, diet in disturbances of the stomach, diet in constipation, in liver and gallbladder disturbances, in cutaneous and allergic diseases, in diabetes mellitus, in Addison's disease, in obesity, in pernicious anemia, in kidney diseases, in epilepsy, in arthritis, in deficiency diseases and in other conditions. Here also is a table giving the normal daily dietary standards for adults with modifications to meet the needs of the body in pathologic conditions. Section four comprises recipes for different kinds of beverages, fruits, cereals, salads, soups, sauces, meats, vegetables and desserts. The appendix contains information on food values. The book has been reorganized and rewritten to follow closely the curriculum of the National League for Nursing Education. This edition presents the latest methods of teaching the fundamental principles of nutrition in health and disease; it is a valuable guide for nurses, dietitians and others interested in nutrition and diet therapy.

Of Yesterday and Tomorrow. By E. O. Laughlin (Eolus). Cloth. Price, $1.50. Pp. 108. Kansas City, Mo.: Brown-White Company, 1938.

Among medical contributors to poesy, Dr. E. O. Laughlin has had a welcome in many leading periodicals and newspaper columns. He has a flair for rhythm and his medical background gives color to all his verse. This is his most recent collection. He reveals humor and humane understanding. An example of his originality is the following epigrammatic clothing of a trite concept:

SENESCENCE

This is old age's sorrow:
That one no more may borrow
From Tomorrow,
And has so many debts to pay
To Yesterday.

Die Technik der Operation der Gaumenspalten und Gaumenlippenspalten nebst Ergebnissen. Von Dr. Kurt Luhmann, Oberarzt der Chirurg. Univ.-Klinik Breslau. Paper. Price, 9.60 marks. Pp. 99, with 170 illustrations. Leipzig: Johann Ambrosius Barth, 1937.

This book presents in a clear and concise way the methods of Veau and of the author for the treatment of lip and palatine clefts. The rare forms of facial clefts are not in the purpose of the book. The author believes, with Veau, that the palate must be corrected when the child is beginning to learn to speak, that is, around the second year of life. He prefers to do the lip early, between 3 and 5 months of age, profiting by the softer skeletal frame. The preferred anesthesia is, in children and adults, ether by intranasal catheter or by the drop method. Children are prepared previously with atropine and avertin with amylene hydrate. He agrees with Veau that all the necessary elements to repair the defect are present. A complete cleft and its repair with the Veau method is clearly illustrated and described. For repair of clefts of the soft and hard palate, he has abandoned the Veau method except in particular cases because he considers it inconvenient in older children; the posterior palatine pedicle is not sufficiently freed; there is a danger of dehiscence in the zone between the soft and the hard palate provoked by excessive tension, and the soft palate lacks the necessary freedom to allow an easy and sure closure. For these reasons he proposes a method of his own, derived from the original of Langenbeck and based on layer dissection of the cleft, bilateral section of the posterior palatine pedicle, debriding lateral incisions including soft and hard palate, complete mobilization and suture by layers of the flaps. His statistics are based on 177 patients, on whom he has performed 284 operations. After the 260th, he lost two cases. In using the method proposed by Veau for the closure of the cleft palate he has had some partial failures; otherwise his personal procedure has almost always been followed by success.

The Infant: A Handbook of Modern Treatment. By Eric Pritchard, M.A., M.D., F.R.C.P., Consulting Physician to the Queen's Hospital for Children, London. Cloth. Price, $6. Pp. 744, with 52 illustrations. Baltimore: William Wood & Company, 1938.

Most books on therapy, after briefly presenting symptoms and diagnosis, offer several methods suitable for the treatment of each condition described. In this book, only enough information concerning the etiology and pathology of the various diseases is given to explain the rationale on which the treatment is based. A collection of many different methods of treatment is not presented, but rather only those methods which the author has selected because he believes them to be the best and most reliable. The reader is not left any choice as to what therapeutic procedure he should adopt. The book covers the disorders of the first five years of life. The complete index will enable the reader to find quickly the information he requires. The prescriptions appended also will be found useful. The treatment methods are practical and, in most instances, clearly presented in an amply detailed manner.

Textbook of Zoology. By George Edwin Potter, Ph.D., Professor of Zoology, Baylor University, Waco, Texas. Cloth. Price, $5. Pp. 915, with 455 illustrations including 15 color plates. St. Louis: C. V. Mosby Company, 1938.

Not long ago, all that was known in zoology, botany, geology and related subjects was studied under the heading of natural history. With the rapid advance in science, zoology alone has grown to such magnitude that it must be divided into numerous special fields. The number of described species of animals is said to range from 840,000 to more than a million, and one writer has said that there are probably two million species of living animals, to say nothing of the large numbers of extinct forms. The subdivision of zoology which deals with the classification of organisms according to their natural relationships is taxonomy. This textbook classifies the animal kingdom after first giving a historical review of zoology, with brief biographies and photographs of some famous zoologists. Then follows a discussion of protoplasm and many other chapters, each devoted to some one phylum or class of animals. Chapter four deals with protozoa in general, chapter six with amebas, chapter seventeen with mollusks, and so on. Insects are the most abundant creatures on the earth, comprising more than 650,000 living species, many of which have never been seen by the majority of mankind. These arthropods have been on the earth, the author says, from the Pennsylvanian times of the late paleozoic era and have for probably a hundred million years been adjusting to a changing environmental complex. Their success is evident, for in a sense the two great contending forces today are insects and man.

The author has had the cooperation of several teachers and specialists in different fields in the preparation of many of the chapters. He has made an effort to lead the student to think of biology as related to mankind and to himself. This is more evident in the later chapters of the book, which take up the mammalia, where the interesting statement is noted that the camel's blood is an exception to the rule that mammalian blood contains unnucleated, circular red corpuscles. In the chapter on animal parasitism are discussions of many specimens that are parasitic to man. The later chapters concern wild life conservation, comparative embryology, genetics, comparative physiology, paleontology, and phylogenic relations of animal groups and the theory of evolution. The many pages of glossary seem necessary in a science that has developed so fast.

Traité d'électroradiothérapie. Publié sous la direction de L. Delherm et. A. Laquerrière. Secrétaire général: M. Morel-Kahn. Secrétaire adjoint: H. Fischgold. Tomes I et II. Cloth. Price, 480 francs per set. Pp. 1,061; 1169-2015, with 450 illustrations. Paris: Masson & Cie, 1938.

These two volumes stand as a monumental work reflecting the interests of the French school of electroradiology. The entire work is dedicated to Professor Arsène d'Arsonval in tribute to his contributions in the application of physical science to disease. The majority of the ninety-two separate contributors are French; others are proponents of the French school residing in other European countries or in Canada. The subject matter begins with chapters giving the history and basic physical concepts of electrophysics as they have been applied in medicine. The underlying electrobiologic and radiobiologic concepts are fully discussed in reference to physical therapy and radiotherapy. The greater portion of this work is concerned with the different organ systems and the diseases therein which can be ameliorated or relieved by electrotherapeutic measures. In this respect the work is almost encyclopedic in extent. As a reference book it does not lack in completeness. As a textbook in electrotherapy and radiotherapy it will serve as a valuable guide to those familiar with the French language. The American reader will be struck particularly by the many diseases in which some form of electrotherapy is used. In this respect perhaps the work inadvertently suggests the long road of trial and error which has characterized so many attempts to apply electrotherapy or radiotherapy.

Aids to Biochemistry. By E. A. Cooper, D.Sc., F.I.C., A.R.C.S., and S. D. Nicholas, B.A., A.I.C., Lecturer in Chemistry, University of Birmingham. Second edition. Cloth. Price, $1.50. Pp. 213, with 12 illustrations. Baltimore: William Wood & Company, 1938.

The sketchy text is intended to present the general principles of biochemistry to medical and science students who have already studied the subject by means of larger textbooks or lecture courses. It is "intended primarily for purposes of revision." It is also intended as a manual for experimental work. The work contains many inaccuracies. Among them are "the hexose molecules, for example, contain no less than four asymmetric carbon atoms" and "sixteen stereoisomeric aldoses are known." The treatment of the chemistry and importance of vitamins, of ketosis and antiketogenesis, male sex hormones, corpus luteum activity, enzymes, and acid-base equilibrium in the body is inadequate. The book would be of very little value as a "revision" for students of medicine in the United States.

Focal Infection and Arthritis in the Light of Experiment. By Einar Jarlov, M.D., and Ove Brinch, M.D. Report from the Danish sections of the Association Internationale pour les Recherches sur la Parodontose and the Ligue Internationale contre le Rhumatisme. Paper. Pp. 94, with 22 illustrations. Copenhagen: Lunos & Stiedl, 1938.

After reviewing some of the earlier work on focal infection in arthritis, this little monograph, written in English, reports observations on experimental infection in rabbits. Streptococci of varying virulence were employed and it was found that strains of low virulence gave a greater infection percentage than those of high virulence. A measure of support is also given to the view that there are certain strains of streptococci with definite arthrotropic qualities. It is concluded that chronic joint disease which exactly resembles primary progressive polyarthritis (rheumatoid or atrophic arthritis) as well as osteo-arthritis can be produced experimentally on a purely infectious basis. As is well known, there are two schools of thought in this regard and these experiments definitely if not conclusively support the views of those who hold that rheumatoid arthritis and osteo-arthritis are not absolutely different and specific diseases. While there are some who believe that rabbits are entirely too obliging experimental animals for this type of experimental work, this report should be read by all those who are interested in this controversy.

Der Operationskurs des Hals-, Nasen- und Ohrenarztes. Von Prof. Dr. H. Beyer und Prof. Dr. A. Seiffert. Teil 1: Die Operationen am Ohr. Von Prof. Dr. H. Beyer. Second edition. Paper. Price, 24.50 marks. Pp. 278, with 217 illustrations. Leipzig: Curt Kabitzsch, 1938.

This brief yet comprehensive handbook of otologic surgery was planned as a guide for cadaver work as well as for the practicing specialist. The illustrations are new, clear and drawn from the original, occasionally international, sources. The explanatory text is accurate and simple, giving not only technical details but also comparative statistics on various procedures. The author has brought his work down to date with the inclusion of Ramadier's and Lempert's paracarotid approach to the petrous apex, and of Holmgren's, Sourdille's and Wittmaack's operations for the relief of otosclerosis. More important, the usual operations are well illustrated with due regard to anatomic variations, and the technics suggested are those generally followed. There is a fair bibliography, as usual lacking reference to American work, and a brief subject index.

Biodinamika protoplazmy. [By] N. B. Medvedeva. Pid redaktsieyu: O. O. Bogomoltsya. [Biodynamics of Proteins.] Paper. Price, 5 krb. 50 kopecks. Pp. 244. Kiev: Vidavnitstvo Akademii Nauk URSR, 1938.

Nina Medvedeva is one of the most prolific research workers of the Ukrainian Academy of Sciences and claims to have separated a specific adrenal cortical hormone. The monograph at hand presents an extensive review of the chemical composition of proteins and their biologic properties. It is written in the Ukrainian.

American Traumatic Guide. [A National Survey in Compact Form of Traumatic Cases, Showing Physicians' Fees, Loss of Time and Percentages of Disability.] By William W. Bowen, M.D. Fabrikoid. Price, $3. Pp. 90, with 23 illustrations. Des Moines, Iowa: American Publishing Co., 1938.

This is a compact survey of traumatic cases showing physician's fees, loss of time and percentage of disability.

The author has compiled charts and schedules in an effort to give physicians in general practice a reference that will help them in these situations. The schedules and percentages were compiled from reports of insurance companies, railroads, state insurance funds, United States Department of Labor and the experiences of specialists.

The first half of the book is purely anatomic. There is a glossary, definitions of terms used in the booklet and a report of workman's compensation, loss and extent of disability and by states.

The guide should be of value to surgeons doing casualty and compensation work and for claim superintendents, adjustments and legal and claim departments of insurance companies for setting up reserves and adjusting cases.

Allgemeine Pharmakologie: Ein Grundriss für Ärzte und Studierende. Von Dr. med. habil. Friedrich Axmacher, Dozent für Pharmakologie an der Medizinischen Akademie Düsseldorf. Paper. Price, 9.60 marks. Pp. 189, with 32 illustrations. Berlin: Julius Springer, 1938.

The author sees that general pharmacology is steadily replacing the old burdensome pharmacology with its immense number of drugs and recipes which the physician may rarely use. The object of the book is to present the general principles of pharmacology in a separate and short form, now lacking in the German language. The student may benefit from general pharmacology as much as from instruction in general pathology. The study must be pursued assiduously if the student is to gain fundamental conceptions of drug action. He discusses the absorption of drugs, their distribution in the body, excretion, relation of dose to effect, sensitivity of the organism, habituation, idiosyncrasy, fate of drugs in the body, synergism and antagonism, and chemical constitution in relation to action. The American student will find nothing new, either in method of presentation or in subject matter. All is to be found in the standard textbooks of pharmacology.

Der Zyklus der Frau: Reform des Ehelebens. Von Dr. Jules Hammels, Leiter der Einrichtung für Kursvollentherapie, Amsterdam. Paper. Price, 4.50 guilders. Pp. 175, with 43 illustrations. The Hague: G. Naeff, 1938.

The author of this book is trying hard to convince every one of his ideas. Within the last two years he has written three books and twenty-five articles in four different languages. Practically all the information imparted in this book is based on an instrument devised by the author and called a cycloscope. He first describes the anatomy of the pelvic organs. He then discusses endocrinology from a gynecologic point of view. There follows a description of the cycloscope, a simple instrument by means of which he claims he can study all the essential hormone processes in the body. By the use of this instrument, according to the author, it is possible for the first time to determine exactly when a woman ovulates. The author maintains that young girls and young women ovulate three times every month and that after a certain age or after a labor women ovulate

twice a month. Likewise the author claims that by means of this instrument it is possible to determine a pregnancy a few days after fertilization, even before a menstrual period is missed. Furthermore the instrument permits graphic demonstration of all ovulatory and menstrual disturbances. The essential part of the cyclioscope is a spectroscope, and the purpose of the instrument is to study the reduction stripes of the oxyhemoglobin in the blood and the appearance of the first methemoglobin coloring. A great deal of the contents of the book are duplicated in another of the author's books, "Endogene Endokrinotherapie in der Gynäkologie," which was recently reviewed in THE JOURNAL. The author's claims are startling. Thus far no one has published any confirmatory reports, although the author says that Gauss of the Würzburg clinic, through his assistant Kastendieck, reported that he had investigated Samuels' cyclioscopic methods of investigation and confirmed a few of his conclusions.

Treatment in General Practice: The Management of Some Major Medical Disorders. Volume II. Articles Republished from the British Medical Journal. Second edition. Cloth. Price, 10s. 6d. Pp. 436, with illustrations. London: H. K. Lewis & Co., Ltd., 1938.

This edition so soon after the appearance of the first is largely due to the application of sulfanilamide and similar compounds in the treatment of streptococcic and other infections. The thoroughly practical nature of this relatively small book by numerous authors on diseases of the respiratory tract, acute specific fevers and cardiovascular diseases makes it merit a place in the library of every practicing physician.

Handbook of Physiology and Biochemistry. By the late W. D. Halliburton, M.D., LL.D., F.R.C.P., and R. J. S. McDowall, M.D., D.Sc., F.R.C.P., Professor of Physiology, University of London, King's College, London. Thirty-fifth edition. Cloth. Price, $5.50. Pp. 973, with 373 illustrations. Philadelphia: P. Blakiston's Sons & Co., Inc., 1937.

It is unusual for a scientific textbook to go into its thirty-fifth edition, which this handbook of physiology has done. It is still a popular book. The intervals between the last few editions have become shorter, although the number of books printed each time has been the same. New points have been added about the humoral transmission of the nerve impulse, vitamins, enzymes and sex hormones. The several sections on lymph formation, the pituitary, metabolism and diet have been completely remodeled. Some things which in former editions seemed important have been given less attention. The editors have kept in mind the needs of medical students preparing for examinations, and that accounts for some limitation of material and probably also for the popularity of the book. William S. Kirkes of St. Bartholomew's Hospital, a student of James Paget, edited the first edition in 1848. Kirkes thanks Sir James Paget for allowing him the free use of his lecture notes. With the fourth edition Mr. Savory, a lecturer on comparative anatomy and physiology at St. Bartholomew's, became the author. With the sixth edition came a new associate editor, Mr. Morant Baker, demonstrator of anatomy. In 1896, when a new edition was necessary, Professor Halliburton accepted the position, thus severing the long association between the book and St. Bartholomew's Hospital. The book now entered a new era of prosperity and in twenty-nine years seventeen editions were published.

The Influence of X-Radiation on the Development of Immunity to Heterologous Transplantation of Tumors. By Johannes Clemmesen. Denne Afhandling er af det lægevidenskabelige Fakultet antaget til offentlig at forsvares for den medicinske Doktorgrad, Kjøbenhavn. The translation into English by Robert Fraser. Paper. Price, 10 Danish kronen. Pp. 160, with 15 illustrations. Copenhagen: Levin & Munksgaard; London: Oxford University Press, 1938.

This small paper covered book will be valuable to those who are interested in the experimental phase of cancer work, because it contains a critical analysis of the experimental background as it applies to the transplantation of various tumors and also a detailed report of the author's own experiments. Clemmesen apparently inclines toward the genetic theory of cancer transmission and therefore appears to believe that mutation is perhaps the main factor in and the best explanation of most of the observations made in experimental cancer. To radiologists this report should be interesting because in his own experiments the author has used roentgen rays to a considerable extent in order to reduce the resistance of animals to transplanted tumors.

Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern. Der Kreuzschmerz in seiner Beziehung zur Wirbelsäule. Von Priv. Doz. Dr. J. E. W. Brocher. Mit einem Vorwort von Prof. Dr. Volhard. Fortschritte auf dem Gebiete der Röntgenstrahlen, Ergänzungsband LV. Herausgegeben von Prof. Grashey. Paper. Price, 19.50 marks. Pp. 91, with 101 illustrations. Leipzig: Georg Thieme, 1938.

This interesting monograph on backache and sciatica contains discussions of anomalies of the spine, congenital defects, osteoporosis, lumbago and sciatica. It provides a clinical investigation of spina bifida, sacralization, spondylolisthesis and the gynecologic aspects of the subject. There is a foreign bibliography. The illustrations of vertebral pathologic changes are well done and highly instructive.

Oftalmologia dei paesi caldi. Dal Prof. Vittorio Ruata, docente di patologia e Clinica oculistica nella R. Università di Roma. Cloth. Price, 45 lire. Pp. 362, with 96 illustrations. Milan: Ulrico Hoepli, 1938.

This comparatively small book deals with the ophthalmologic conditions encountered in practice in the tropical climates and is based on the personal experiences of the author. It is divided into nine chapters, five of which are devoted exclusively to the questions of oriental ophthalmology. The effects of intense heat and sunlight on the eyes are peculiarly tropical, as are the effects of the living conditions. To the ophthalmologists of the temperate zones, animal parasites are an almost unknown quantity, particularly the various forms of Filaria; but to the ophthalmologists in tropical countries the descriptions and illustrations that Ruata presents are of the utmost value. The chapters that deal with the bacteriology of the eye and the usual forms of conjunctivitis present nothing of unusual interest. A fairly long chapter is devoted to trachoma and offers a fairly good summary of the well known facts, except that the part devoted to treatment is rather skimpy. The diseases of the cornea and of the fundus again present the conditions that are peculiar to tropical ophthalmology. The final short chapter on surgery could well have been omitted. The black and white illustrations throughout are uniformly poor, except those depicting the various animal parasites. The colored illustrations, on the other hand, are uniformly good. Appended to each chapter is a good working bibliography. To one who reads Italian and who practices in tropical climates, the book is valuable.

Dysmenorrhoea: Its Aetiology, Pathology and Treatment. By Albert A. Davis, M.D., Ch.M., F.R.C.S., Hon. Gynaecological Surgeon to Outpatients, the French Hospital, London. Cloth. Price, $4.50 Pp. 234, with 35 illustrations. New York, London & Toronto: Oxford University Press, 1938.

This subject, surrounded by so many theories as to both etiology and treatment, has been handled admirably by Davis in this treatise. The total amount of incapacity and the days of disability among women affected by dysmenorrhea each month are truly of vast economic as well as physical importance and more than warrant the attention which has been given the subject by many writers. Davis's book reviews the historical phases and the innumerable attempts at classification of dysmenorrhea. He finally sums up the latter as being symptomatically "spasmodic" and "congestive" or pathologically "primary" and "secondary" His summation along these lines is primarily for therapeutic reasons. He continues with an analysis of its etiology, including the hormone and neurogenic theories and a comprehensive discussion of the immediate causes of the pain. Nearly half the book is devoted to treatment, logically based on etiology as far as possible. For the cases requiring surgical treatment he gives in detail the technic of alcohol injection of the pelvic plexus and of resection of the presacral sympathetic nerve plexus, with excellent illustrations. The book is warmly recommended to the gynecologist and will prove of value likewise to the general practitioner.

Paraglionnyi tuberkulez u detei. [By] N. S. Morunovskiy i B. P. Aleksandrovskiy. [Parahilar Tuberculosis in Adults.] Paper. Price, 3 krb. 50 kopecks. Pp. 139, with 22 illustrations. Kiev: Derzhmedvidav, 1937.

This is a monograph emanating from the Kiev Tuberculosis Institute. The monograph is a clinico-anatomic study dealing with hilus tuberculosis as the primary focus of tuberculous infection. It offers nothing that is not already known on the subject and is in the main a corroboration of the recent studies of Ranke. It is written in the Ukrainian.

Clinical Roentgenology of the Digestive Tract. By Maurice Feldman, M.D., Assistant Professor of Gastroenterology, University of Maryland, Baltimore. Cloth. Price, $10. Pp. 1,014, with 358 illustrations. Baltimore: William Wood & Company, 1938.

This book covers completely the whole subject of roentgenology of the gastrointestinal tract. It represents a tremendous amount of work on the part of the author, not alone because of the large field it covers but particularly because of the enormous amount of reading the author has done, as is shown by the extremely large bibliography presented. The subject matter is covered completely and well. There are over 350 illustrations, a few diagrams, the rest reproductions of x-ray films, and almost 200 charts tabulating the reports of the numerous authors who are quoted. Dr. Feldman in his preface states that he is presenting a clinicoroentgenologic consideration of the gastrointestinal tract. This is borne out by the fact that each disease described has its clinical side presented sufficiently to allow both the clinician and the roentgenologist to obtain a fairly complete picture of the whole subject. Of course, this accounts for the size of the book. While this may have its good side, it seems that the clinical side could be condensed considerably without sacrificing its value. No attempt is made to decry the value of this work by calling attention to a few points. In describing the types of stomachs in their relation to the build of the individual it might be advisable to call attention to the work of Moody, who has shown in his study of a large number of students that there is frequently no conformity of the type to the build. Hurst and Stewart's book on duodenal ulcer is not referred to in that caption of the author's work, although references to Stewart do appear. Gastroscopists do not always find a relationship between the gastric folds observed gastroscopically and roentgenologically. It would seem in the last analysis that when the examination is not contraindicated gastroscopy should be the method of choice for diagnosis of gastritis and the character of the rugae. There are a few errors in grammar and in spelling of proper names in the first part of the book which were overlooked. One reference to peptic ulcer, described as gastric ulcer, was quoted wrongly since the type of ulcer described was actually duodenal. The book as a whole is well written, has a large index, and can be recommended for the use of clinicians and roentgenologists.

20 rokiv radyanskoi medytsini na Ukraini. Zbirnik za redaktsieyu O. O. Bogomoltsya, M. D. Strazhesko i S. S. Kagana. [20 Years of State Medicine in Ukraine.] Cloth. Price, 20 krb. Pp. 414, with illustrations. Kiev: Derzhavne Medichne Vidavnitstvo, 1938.

This is a volume edited by the academicians O. O. Bogomolets, M. D. Strazhesko and Prof. S. S. Kagan and devoted to the development of medical service in Ukraine in the past twenty years. It is in the Ukrainian and unlike most contributions of this type is not accompanied by a synopsis in English, French or German. It deals with the development of public health and the growth of dispensaries, hospitals, sanatoriums and lying-in hospitals. One is impressed with the quantitative growth of medical service particularly in the fields of obstetrics, pediatrics and tuberculosis. It is difficult, if not impossible, to form an opinion from the contents of the volume as to the quality of the service.

Outlines of Biochemistry: The Organic Chemistry and the Physicochemical Reactions of Biologically Important Compounds and Systems. By Ross Aiken Gortner, Chief of the Division of Agricultural Biochemistry, University of Minnesota, Minneapolis. Second edition. Cloth. Price, $6. Pp. 1,017, with 165 illustrations. New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Limited, 1938.

The second edition is of the same high standard of excellence as the first and needs no further recommendation as a useful book. The first third of the book is taken up with biophysical chemistry, including chapters on hydrogen ion concentration, oxidation-reduction, osmotic pressure and electrical conductivity, and the remainder on colloids. The rest of the book is on proteins, carbohydrates, including glycosides, lignin and tannins, plant and animal pigments, lipids and essential oils, hormones, vitamins and enzymes. These subjects are treated in a masterly manner and the book is very readable. For those who wish to use it for reference, however, it may be indicated that inositol, phytin and hexosephosphates are taken up with the compound lipids. Since the author does not include co-authors on the title page, we assume that he is responsible for the entire text. It may be noted that on page 867 vitamin F is thrown out of the list on the ground of commercial exploitation. The reviewer has not noticed any lack of commercial exploitation of the other vitamins.

Der Rheumatismus: Sammlung von Einzeldarstellungen aus dem Gesamtgebiet der Rheumaforschungen. Herausgegeben von Professor Dr. Rudolf Jürgens, Stellv. Direktor der Universitätsklinik für natürliche Heil- und Lebensweisen, Berlin. Band VII: Rheumatische Kreislaufschädigungen. Von Dr. Siegfried Dietrich, Dozent für innere Medizin, II. Medizinische Klinik der Charité, Berlin. Mit einem Geleitwort von Prof. Dr. G. von Bergmann, Direktor der II. Medizin. Univ.-Klinik, Berlin. Boards. Price, 9 marks. Pp. 204, with 34 illustrations. Dresden & Leipzig: Theodor Steinkopff, 1938.

This monograph is one of the series on various aspects of rheumatism written by different German authorities. Dietrich has reviewed the literature on the effect of rheumatism, especially rheumatic fever, and on the circulatory apparatus and has expressed some of his own opinions. There is an excellent bibliography attached.

Nervova sistema i vuglevodnyi obmin u bezkhrebetnykh. [By] M. V. Ermakov. Pid redaktsieyu O. O. Bogomoltsya. [Nervous System and Carbohydrate Metabolism of Invertebrates.] Paper. Price, 3 krb. Pp. 96, with 16 illustrations. Kiev: Vidavnitstvo Akademii Nauk URSR, 1938.

The monograph by Prof. M. V. Ermakov in Ukranian is concerned with the elucidation of the development in the phylogenesis of the relationship between the nervous system and blood sugar level in a number of invertebrates. The author found that the nervous system begins to assume a role in the regulation of hemolymph sugar at that stage of evolution in which there appears in the nervous system a more or less differentiated sympathetic division. Such is the case in certain mollusks, lobsters, crabs, scorpions and insects. The monograph presents an interesting contribution to the problem of evolutionary physiology.

Hormale und krankhafte Steuerung im menschlichen Organismus. Fünfundzwanzig Vorträge gehalten in dem Internationalen Fortbildungskurs der Berliner Akademie für ärztliche Fortbildung vom 20. bis 31. Oktober 1936. Von Prof. Dr. H. W. Bansi, et al. Zusammengestellt von Professor Dr. C. Adam. Paper. Price, 12 marks. Pp. 302, with 39 illustrations. Jena: Gustav Fischer, 1937.

This is a collection of lectures about what we know at present concerning several subjects. Such subjects are included as the autonomic nervous system, endocrines, acid-base balance, central nervous system, psychic phenomena, sleep, circulation, nutrition, growth, allergy and inflammation. The essays are general in character and are not critical contributions to the subjects in question. Rather they are meant to serve as short reviews for the German practitioner to bring his information down to date. The volume will be of little or no interest to American physicians, since there are similar reviews in English.

Biography of the Unborn. By Margaret Shea Gilbert. Cloth. Price, $1.75. Pp. 132, with 36 illustrations. Baltimore: Williams & Wilkins Company, 1938.

The author has attempted to present to the lay reader in intelligible terms the manner of the development of a fetus in utero. She relates this in the chronological pattern of the nine calendar months which comprise the normal period of human development before birth. She has succeeded in writing an interesting story of this complicated subject, although at times she is quite flowery in her descriptions and explanations. The illustrations greatly help to clarify the text. A relatively large proportion of our population is avid for factual and pseudofactual information about the process of childbirth and many of these persons will find this book interesting and instructive.

Kollapstherapie der Lungentuberkulose. Herausgegeben von Walter Schmidt. Mit einem Geleitwort von Ludolph Brauer und Ferdinand Sauerbruch. In two parts. Paper. Price, 116 marks. Pp. 528; 531-1135, with 1,077 illustrations. Leipzig: Georg Thieme, 1938.

This is an elaborate work on collapse therapy in two volumes. The introduction by Ludolph Brauer and Ferdinand Sauerbruch in itself is a good recommendation for this work. Numerous authors have contributed chapters, and every phase of collapse therapy is discussed. The work of a number of American authors is cited, as well as of those from various other nations. These volumes are profusely illustrated and contain an extensive bibliography. They can be recommended to all physicians interested in collapse therapy.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: When Judgment for Fee Does Not Bar Subsequent Malpractice Suit.—McDowell, a licensed physician, sued Marchant to recover his fee for operating on Marchant's wife. Marchant filed a counterclaim, asking damages for a burn sustained by his wife, so he claimed, who, when on the operation table and while under the anesthetic, extended her hand and touched a hot radiator. The jury rendered a verdict for the physician for his fee but disagreed as to the counterclaim, whereupon the court "dismissed the counterclaim, but not on the merits." Judgment was then entered for the physician.

Later Marchant brought, in the city court of Buffalo, an action against the physician to recover damages for the burn sustained by his wife. The physician moved that the action be dismissed, relying on *Blair* v. *Bartlett*, 75 N. Y. 150, 31 Am. Rep. 455, in which the court said:

> It must be considered as settled in this state, that a judgment in favor of a physician and surgeon for his professional services, rendered by a court of competent jurisdiction, in an action in which the defendant appeared and answered, setting up a defense which he maintained at the trial . . ., is a bar to an action for malpractice by that defendant against that physician and surgeon for malpractice in rendering those services.

The facts involved in that case, said the court, differ essentially from those in this case. In the case cited, a complete trial had been had, a full opportunity had been given to the defendant to appear and defend, and a judgment was rendered. In the present case the jury considered two matters, the professional sufficiency and value of the services rendered by the physician and the alleged negligence of the physician in permitting the operating table to be too near the radiator. Obviously, the court said, the position of the operating table presented a problem which had attached to it no element of professional technic; it was a matter of commonplace negligence, involving no failure in subtle niceties of the performance expected and received from medical men as such. The jury, by reporting the disagreement in their verdict with respect to the counterclaim, indicated that they had reached no decision concerning the question. Marchant, then, has had no opportunity of having this essential phase of his case judicially determined.

The court believed, therefore, that Marchant should be given an opportunity to litigate the question as to the negligence "in this radiator propinquity circumstance" and therefore denied the motion of the physician to dismiss the action.—*Marchant v. Buffalo General Hospital (N. Y.), 3 N. Y. S. (2d) 496.*

Compensation of Physicians: Liability of Employer for Medical Services Rendered Employee.—Perry was seriously injured in the course of his employment. At the apparent suggestion of his employers that hospitalization was necessary, he was taken to a hospital in a neighboring town and the plaintiff physician called to attend him. After diagnosing Perry's condition, the physician visited the employers to ascertain who would be responsible for his bill and was assured that his bill "would be taken care of all right," that "the insurance company (with whom the employers carried a policy of workmen's compensation insurance) would take care" of it. The physician then undertook to care for Perry. Perry never instituted proceedings under the Missouri workmen's compensation act, to which the employers and the worker were subject, and the physician's bill was not paid. The physician then sued the employers at common law to recover his fees. The defendants contended that the court was without jurisdiction since the workmen's compensation commission of Missouri was the only tribunal authorized by law to pass on the matter. The court, however, sitting without a jury, entered judgment in favor of the physician and the defendants appealed to the Kansas City (Missouri) court of appeals.

Apparently proceeding on the theory that a physician could not have a claim for services litigated before the compensation commission independently of a claim for compensation filed by the injured workmen, the court believed that to hold, as the defendants contended, that exclusive jurisdiction to pass on a physician's bill for services rendered an injured workman was vested in the compensation commission would permit employers, by settling with their injured workers without recourse to the commission, to defeat obligation for services rendered at the employer's request. Admittedly, said the court of appeals, Perry and his employers were operating under the provisions of the Missouri workmen's compensation act and Perry suffered an injury arising out of and in the due course of his employment. The employers, therefore, were in no position to assert that there was no duty on them to provide medical, surgical and hospital treatment. This duty would render them liable to pay a physician whom they called to care for their injured workman even though the rule of law is that when a physician is called at the mere request of a third party, on whom there rests no obligation to provide medical care, no contract to pay for the services is implied. Whether or not the employers in this case assumed an obligation to pay the physician was a question of fact for the trial court to determine and the court of appeals believed that sufficient facts were in evidence to support an inference that the employers had assumed that obligation. The court further believed that the fact that the employers expected the insurance company to pay would not alter the situation. The judgment in favor of the physician was accordingly affirmed.—*Gronoway v. Markham (Mo.), 115 S. W. (2d) 136.*

Malpractice: Failure to Use Roentgenograms as Diagnostic Aid.—The defendant did an open reduction of the patient's fractured ankle in November 1927, using a metal screw to keep the fragments in appositior. Seven years later, in November 1934, the patient again consulted the defendant, complaining of pain in the ankle that had been fractured. The physician, attributing the trouble to arthritis, wrapped the ankle with adhesive tape and adjusted an arch support which he had made for the patient at the time he reduced the fracture. About a week later he removed the adhesive tape. The ankle became more painful and finally, in January 1936, the patient went to another physician, who discovered through the use of roentgenograms that there had been some necrosis of the bone around the screw. The screw was removed and the patient made an uneventful recovery. Later the patient and her husband instituted a malpractice action against the defendant. The trial court at the close of the plaintiff's evidence directed a verdict for the physician, and the plaintiffs appealed to the Supreme Court of Arizona.

A physician to be liable for malpractice, said the court, must have done something in his treatment of his patient which the recognized standard of good medical practice in the community in which he is practicing forbids in such cases, or he must have neglected to do something which such standard requires. That standard must be shown by affirmative evidence and negligence on the part of a physician in departing from the standard must be established by expert medical testimony, unless the negligence is so apparent that a layman would have no difficulty in recognizing it. The testimony of other physicians that they would have followed a course of treatment different from that followed by the defendant is not sufficient to establish malpractice unless it also appears that the course of treatment followed deviated from one of the methods of treatment approved by the standard in the community. The treatment by the defendant in the present case, said the court, consisted of an "ordinary examination" of the ankle, the smoothing of an arch support which she was then wearing, the wrapping of the ankle with adhesive tape, and the removal of the tape about a week later. The only testimony bearing on medical standards or the treatment accorded the patient in November 1934 was that of the defendant himself and of the physician who removed the screw. The defendant testified that he did what was required by the patient's condition as it existed when he treated her in November 1934. The other physician could not state how long prior to January 1936 the screw should have been removed. He stated however that, if the ankle had been in the same condition in November 1934 as it was when he operated in January 1936, the screw should have been then removed but that it was impossible for him to testify as to when the condition justifying the removal

arose. He further stated that if he had been in the position of the defendant when the patient called in November 1934 his conclusion, like the defendant's, would have been that arthritis in the ankle joint was causing the pain but that he would not have been fully satisfied without having a roentgenogram made of the ankle. He further testified that the method of uniting fragments of bone used by the defendant was a standard one and that the screw was not removed, as a rule, unless it made trouble.

The plaintiffs based their claim of negligence almost entirely on the failure of the defendant to take a roentgenogram of the patient's ankle in November 1934. They urged that a failure to do so was such obvious negligence that even a layman knows that it was a departure from the proper standard. The Supreme Court, however, could not agree with this contention. It is true, said the court, that most laymen know that roentgenograms usually offer the best method of diagnosing physical changes of the interior organs of the body, and particularly of the skeleton, short of an actual opening of the body for ocular examination, but laymen cannot say that, in all cases in which there is some trouble with the internal organs, it is a departure from standard medical practice to fail to take a roentgenogram. In view of the testimony in the present case as to the arthritis from which the patient was suffering and which the second physician testified would have been his first thought as to the cause of the patient's pain in 1934, the court thought it was going too far to say that the failure to take a roentgenogram at that time was so far a departure from ordinary medical standards that even laymen would know it to be gross negligence. Since there was insufficient evidence in the record to show that the defendant was guilty of malpractice, the trial court properly directed a verdict for the physician. The judgment in favor of the physician was accordingly affirmed.—*Boyce v. Brown (Ariz.), 77 P. (2d) 455.*

Hospitals: Criteria of Charitable Status of a Hospital.—If the purpose of an institution, said the Supreme Court of Arizona, is one which is recognized in law as charitable, and if it is not maintained for the private gain, profit or advantage of its organizers, officers or owners, directly or indirectly, the institution is properly characterized as a charitable one, notwithstanding the fact that it charges for most, if not all, of the services which it may render, so long as its receipts are devoted to the necessary maintenance of the institution and the carrying out of the purpose for which it was organized. The extent of the free services rendered by a hospital offers no adequate test of the charitable status of the hospital, the court said.

In the present case a baby was burned by negligent exposure to a hot water bottle in the appellant hospital. The contention that was advanced on behalf of the infant, in a suit against the hospital, was that even if it should be admitted that the hospital was a charitable institution, nevertheless it was bound to use due care in the selection of its employees and if it failed to do so it is liable for the negligence of such employees. The court, however, was unable to discover any evidence in the record sufficient to bring the case within the rule correctly stated in the contention. There was nothing to show which particular employee was guilty of the undoubted negligence which caused the injury. The record did show that three weeks prior to the injury in the present case another baby was burned in a somewhat similar manner, but this evidence was considered by the court entirely insufficient to establish that, even assuming that the same nurse was responsible for the two injuries, the hospital did not use due care in her selection and retention. It is true, the court pointed out, that the doctrine of res ipsa loquitur is properly applicable in such circumstances. But, the court continued, it was shown in the present case that all the nurses employed by the hospital were authorized by the state of Arizona to practice their profession. Where it is shown by positive evidence that the nurses employed by a hospital are of this character, any presumption that may have arisen from the doctrine of res ipsa loquitur that the hospital has not used due care in the selection of a given employee is destroyed, and in order to overcome such evidence there must be at least an affirmative showing that the hospital had knowledge of the previous negligence of the nurse and, notwithstanding such knowledge, continued her employment. Since there was no evidence that the hospital ever knew that any one of its nurses was not competent in all respects, and since the record showed affirmatively that the hospital was, within the true meaning of the phrase, a charitable institution, it was not legally responsible for the unfortunate situation involved in the present case. The judgment of the superior court against the hospital was therefore reversed and the case remanded with instructions to enter judgment for the hospital.—*Southern Methodist Hospital and Sanatorium of Tucson v. Wilson (Ariz.), 77 P. (2d) 458.*

Workmen's Compensation Act: What Constitutes a Hernia.—The claimant in this case contended that in the course of his employment he fell and immediately experienced a sharp pain in his left groin. He reported the accident to his foreman and was referred to the first aid station. What was found there is not shown by the record, but the claimant applied for compensation, alleging that an inguinal hernia had resulted. From an order of the workmen's compensation commission reversing an award that the deputy labor commissioner had entered in favor of the claimant, the claimant appealed to the Supreme Court of Michigan.

At a hearing before the deputy commissioner a physician who had examined the claimant a few days after the alleged accident and again about two months later testified that he had found on both occasions a left indirect inguinal hernia. On behalf of the employer, however, a physician who had examined the claimant in the interval between these two examinations testified that he had found an enlarged inguinal ring on each side, the ring on the left side being somewhat more enlarged than that on the right, but that he found no hernia. The condition that he found might be referred to, he said, as a potential hernia, but in his opinion nothing is a hernia unless there is a protrusion of a viscus or organ from its natural cavity. There was no protrusion of a viscus in the present case, although there was "a sharp mass by inserting your fingers in the rings and getting up on to the abdominal cavity." Some men, said this witness, call any such sharp mass a hernia, but others refuse to call it a hernia until after it has descended. In this case, in the opinion of this witness, the viscus had not descended through the rings.

Quoting its own decision in *Robbins* v. *Original Gas Engine Co.*, 191 Mich. 122, 157 N. W. 437, 438, the court said that in that case—

> All the experts seem to agree that the visible evidence of the hernia is the protrusion through the inguinal ring of the peritoneum and its contents; "the hernia is the peritoneum going through, accompanied by the intestines or some other substance."

In the present case, said the Supreme Court, there was no protrusion through the internal inguinal ring and the evidence sustained the finding of the Commission on Labor and Industry holding that the claimant had a potential hernia or a predisposition to hernia. The order of the commission denying compensation was affirmed.—*Cessante v. Ford Motor Co. (Mich.), 278 N. W. 671.*

Society Proceedings

COMING MEETINGS

American Academy of Orthopedic Surgeons, Memphis, Tenn., Jan. 15-19. Dr. Carl E. Badgley, 1313 East Ann St., Ann Arbor, Mich., Secretary.

American Association for the Study of Neoplastic Diseases, Baltimore, Dec. 28-30. Dr. Eugene R. Whitmore, 2139 Wyoming Avenue N.W., Washington, D. C., Secretary.

American Student Health Association, New York, Dec. 29-30. Dr. Ruth E. Boynton, Students Health Service, University of Minnesota, Minneapolis, Secretary.

Annual Congress on Industrial Health, Chicago, Jan. 9-10. Dr. C. M. Peterson, 535 North Dearborn St., Chicago, Secretary.

Annual Congress on Medical Education and Licensure, Chicago, Feb. 13-14. Dr. W. D. Cutter, 535 North Dearborn St., Chicago, Secretary.

Eastern Section, American Laryngological, Rhinological and Otological Society, Boston, Jan. 11. Dr. Frank E. Kittredge, Masonic Temple, Nashua, N. H., Chairman.

Middle Section, American Laryngological, Rhinological and Otological Society, Sioux City, Iowa, Jan. 19-20. T. R. Gittins, Davidson Bldg., Sioux City, Iowa, Chairman.

Southern Section, American Laryngological, Rhinological and Otological Society, New Orleans, Jan. 14. Dr. Francis E. LeJeune, Maison Blanche, New Orleans, Chairman.

Western Section, American Laryngological, Rhinological and Otological Society, Spokane, Wash., Jan. 29. Dr. Frederic G. Sproul, Medical Arts Bldg., Spokane, Wash., Chairman.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1928 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

16: 387-514 (Oct.) 1938

Infarction of Lateral Wall of Left Ventricle: Electrocardiographic Characteristics. F. C. Wood, C. C. Wolferth and S. Bellet, Philadelphia.—p. 387.

*The Heart in Pneumoconiosis. C. B. Coggin, D. E. Griggs and W. L. Stilson, Los Angeles.—p. 411.

The Social Component in Heart Disease. Ethel Cohen, Boston.—p. 422.

Study of Chest Leads of Electrocardiogram with an Evaluation of Positions of Precordial Electrode. J. C. Edwards and J. B. Vander Veer, Philadelphia.—p. 431.

Cardiac Output in Compensation and Decompensation in the Same Individual. J. McGuire, Rose Shore, V. Hauenstein and F. Goldman, Cincinnati.—p. 449.

Effects of Intravenous Administration of Digitalis Bodies on Patients with Transient Ventricular Fibrillation. S. P. Schwartz and A. Jezer, New York.—p. 462.

Factors of Error in Blood Pressure Readings: Survey of Methods of Teaching and Interpretation. I. S. Wright, R. F. Schneider and H. E. Ungerleider, New York.—p. 469.

Effect of Valvular Heart Disease on Dynamics of Circulation: Observations Before, During and After Occurrence of Heart Failure. H. J. Stewart, J. E. Deitrick, R. F. Watson, C. H. Wheeler and N. F. Crane, New York.—p. 477.

Heart in Pneumoconiosis.—Coggin and his co-workers ascertained the incidence of pulmonary cardiac disease in 205 cases of pneumoconiosis, its frequency as a cause of congestive failure and whether the cardiac changes could be detected clinically and roentgenologically. Of these cases 102 occurred in the 19,800 necropsies performed at the Los Angeles County Hospital in the last twenty years, and in the remaining 103 cases there was an adequate history of exposure to silica, and roentgenograms showed the characteristic pulmonary changes of pneumoconiosis. Hypertrophy of the right ventricle was present in 44.1 per cent of the 102 cases that were studied post mortem. If hypertrophy of both ventricles is included, right ventricular hypertrophy occurred in 58.8 per cent of the cases. Definite congestive cardiac failure was found more frequently in these cases (51 per cent) than was tuberculosis (40.2 per cent). It was usually a terminal event. Therefore when it occurs clinically the prognosis is grave. If pneumoconiosis is uncomplicated by tuberculosis or other pulmonary infection, death from cardiac failure is to be expected. The clinical diagnosis of cor pulmonale in pneumoconiosis is suggested by accentuation of the pulmonic second sound, marked cyanosis, right axis deviation in the electrocardiogram and characteristic changes in the postero-anterior roentgenogram; that is, prominence of the pulmonary conus, elevation of the cardiac apex and an increase of the broad or basal diameter in the absence of enlargement of other diameters.

16: 515-642 (Nov.) 1938

Dynamics of Hypertension. C. J. Wiggers, Cleveland.—p. 515.

Treatment of Angina Pectoris by Methods Which Appear to Promote More Adequate Filling of the Heart: Presidential Address. W. J. Kerr, San Francisco.—p. 544.

Vascularization of Atherosclerotic Lesions. T. Leary, Boston.—p. 549.

Use of Metrazol in Complete Heart Block with Adams-Stokes Syndrome: Report of Four Cases. H. C. Lueth, Evanston, Ill.—p. 555.

*Use of Quinidine in Treatment of Arrhythmias and Tachycardias Caused by Digitalis Intoxication: Note on Possibility of "Spontaneous Redigitalization" Following Rapid Diuresis. B. A. Gouley and L. Soloff, Philadelphia.—p. 561.

Acute Nephritis with Cardiac Failure: Report of Two Cases. A. E. Feller, Iowa City, and H. M. Hurevitz, Davenport, Iowa.—p. 568.

New Sensitive Recording Oscillometer. I. Friedman, L. H. Ott and A. W. Oughterson, New Haven, Conn.—p. 575.

Quinidine in Digitalis Arrhythmias.—Digitalis, under certain conditions, may accelerate cardiac failure in a manner so insidious that the undesirable effect may be overlooked entirely. The electrocardiographic changes may be the first to show evidence of poisoning and the most reliable guides to the use of the drug. Gouley and Soloff report two cases in which serious digitalis poisoning manifested itself by cardiac arrhythmias, nodal and ventricular tachycardia and auriculoventricular dissociation. These disturbances continued despite withdrawal of the drug. Quinidine therapy was useful in restoring normal rhythm in one case but was of no avail in the other. Its failure in this case was believed to be due to inadequate dosage and to the state of advanced cardiac decompensation. Another factor, however, was a cumulative effect of digitalis, possibly caused by a mobilization of the drug in the circulation during diuresis.

American J. Digestive Diseases, Huntington, Ind.

5: 549-656 (Nov.) 1938

Early Cancer of Stomach and Its Clinical Significance. W. C. MacCarty Sr., Rochester, Minn.—p. 549.

III. Diagnosis of Colitis Associated with Virus of Lymphogranuloma Venereum by Bowel Antigen. M. Paulson, with technical assistance of Betty Kravetz, Baltimore.—p. 554.

*Bacillary Dysentery: Late Results and Relationship to Chronic Ulcerative Colitis. P. W. Brown and J. A. Bargen, Rochester, Minn.—p. 562.

Studies of Adenomatous Polyps and Carcinoma of the Colon. P. Klemperer, New York.—p. 566.

Study of Gallbladder Function. H. Necheles, Chicago.—p. 568.

The Problem of Gallbladder Infection. M. E. Rehfuss and G. M. Nelson, Philadelphia.—p. 571.

Relationship of Lesions of Cystic Duct to Gallbladder Disease. W. H. Cole and L. J. Rossiter, Chicago.—p. 576.

Endocrines in Relation to Gastrointestinal Tract. J. B. Collip, Montreal.—p. 587.

*Treatment of Hemorrhagic Tendency in Jaundice, with Special Reference to Vitamin K. A. M. Snell, H. R. Butt and A. E. Osterberg, Rochester, Minn.—p. 590.

Value of Combined Study of Newer Laboratory Test in Differential Diagnosis of Toxic and Obstructive Jaundice Including Blood Phosphatase, Cholesterol Partition, Galactose Tolerance and Glucose Tolerance. H. Shay and P. Fieman, Philadelphia.—p. 597.

Proved Case of Recovery from Fatty Metamorphosis of Liver After Treatment with Lipocaic. D. H. Rosenberg, Chicago.—p. 607.

Effect of Therapeutic Agents on Volume and Constituents of Bile. C. R. Schmidt, J. M. Bessell, A. J. Atkinson and A. C. Ivy, Chicago.—p. 613.

A Modern Conception of Gastric Secretory Functions, Based on Recent Investigations and Newer Interpretations. S. Morrison, Baltimore.—p. 617.

Relation of Bacillary Dysentery to Colitis.—Brown and Bargen discuss the late results of 140 cases of bacillary dysentery, studied previously by Kinsella, more than sixteen years since the epidemic. Fifteen patients died during the epidemic. Twenty-three patients could not be traced but they apparently were well when they were dismissed. Twenty-four patients died months or years after their dismissal. These patients also apparently were well and had no intestinal symptoms traceable to the epidemic. The stools of forty-five patients yielded Shigella paradysenteriae. Seventy-seven patients are known to have lived for from one to seventeen years and did not have any intestinal symptoms after their dismissal. A form of chronic ulcerative colitis developed in only one of the patients. The incidence of intestinal ulceration of a chronic type following large epidemics of dysentery during wars is exceedingly small. Intensive cultural and serologic investigations of the lesions of typical chronic thrombo-ulcerative colitis for organisms of the Shigella variety have yielded largely negative results. The results of serologic studies in cases of regional enteritis have been inconclusive so far. Sufficient evidence is not at hand to consider the Shigella group of organisms as the cause of chronic thrombo-ulcerative colitis. If chronic ulcerative disease of the intestine develops only in one of every 100 cases of acute dysentery, the suffering in that one case warrants every possible effort to stamp out dysentery.

Vitamin K in Hemorrhagic Tendency in Jaundice.—Snell and his co-workers administered to more than thirty patients, most of whom had obstructive jaundice, from 200 to 1,000 mg. of concentrates containing vitamin K prepared from putrefied fish meal, together with bile salts or human bile obtained from a biliary fistula. The bile or bile salts were mixed with cold pineapple juice and given by mouth in doses of from 75 to 150 cc. before each meal. A typical response of both prothrombin time and the concentration of prothrombin to vitamin K and bile when administered together has been

obtained repeatedly. The prothrombin time decreased to within normal limits within a period of from twenty-four to seventy-two hours and the prothrombin itself showed a quantitative increase. Active bleeding has at the same time been controlled in several instances. It appears that the vitamin alone will not accomplish this result if bile is excluded from the intestine, while bile or bile salts have some definite effect, presumably because these substances facilitate absorption of the vitamin which is already present in the intestinal tract. In the presence of injury of the liver larger amounts of vitamin K are required to achieve the desired effect. Presumably the chemical laws governing mass action are operative in this connection. This treatment offers considerable hope for the ultimate control of the hemorrhagic diathesis in jaundiced persons.

American Journal of Ophthalmology, St. Louis

21: 1203-1314 (Nov.) 1938

Inclusion Blennorrhea: Study of Pathologic Changes in the Conjunctiva and Cervix. A. E. Braley, Iowa City.—p. 1203.
Treatment of Experimentally Produced Exophthalmos with Thyroxine and Other Iodine Compounds. G. K. Smelser, New York.—p. 1208.
Lectures on Motor Anomalies: III. Signs and Symptoms of Heterophoria. A. Bielschowsky, Hanover, N. H.—p. 1219.
Studies on Inclusion Blennorrhea: III. Experimental Considerations of Etiology. L. A. Julianelle, R. W. Harrison and A. C. Lange, St. Louis.—p. 1230.
The Histopathology of Papilledema. B. Samuels, New York.—p. 1242.
Value of Muscle-Balance Tests in Routine Refraction. J. E. Lebensohn, Chicago.—p. 1259.

Archives of Internal Medicine, Chicago

62: 723-902 (Nov.) 1938

Changes in the Liver Produced by Chronic Passive Congestion, with Special Reference to the Problem of Cardiac Cirrhosis. E. W. Boland, Los Angeles, and F. A. Willius, Rochester, Minn.—p. 723.
Enlargement of Liver in Diabetic Children: I. Its Incidence, Etiology and Nature. A. Marble, Priscilla White, Isabel K. Bogan and Rachel M. Smith, Boston.—p. 740.
Id.: II. Effect of Raw Pancreas, Betaine Hydrochloride and Protamine Insulin. Priscilla White, A. Marble, Isabel K. Bogan and Rachel M. Smith, Boston.—p. 751.
*Study of Deranged Carbohydrate Metabolism in Chronic Infectious Hepatitis. J. W. Conn, L. H. Newburgh, Margaret W. Johnston and J. M. Sheldon, Ann Arbor, Mich.—p. 765.
Specificity of Agglutinin Reaction for Shigella Dysenteriae: I. Agglutination Reaction in Chronic Bacillary Dysentery: Serologic and Bacteriologic Study of Forty-Seven Cases. T. T. Mackie, with assistance of Mildred Schweiger and Mary S. B. Gaillard, New York.—p. 783.
Relation of Age to Renal Pressor Substance. E. B. Grossman and J. R. Williams Jr., Nashville, Tenn.—p. 799.
Relation of Renal Pressor Substance to Hypertension of Hydronephrotic Rats. J. R. Williams Jr., R. Wegria and T. R. Harrison, Nashville, Tenn.—p. 805.
*Fatal Anaphylactic Shock in Man. J. Ziskind and H. J. Schattenberg, New Orleans.—p. 813.
*Coronary Occlusion With and Without Pain: Analysis of 100 Cases in Which Autopsy Was Done with Reference to Tension Factor in Cardiac Pain. L. W. Gorham and S. J. Martin, Albany, N. Y.—p. 821.
Cardiac Pain: Experimental Study with Reference to Tension Factor. S. J. Martin and L. W. Gorham, Albany, N. Y.—p. 840.
Coccidioides Infection (Coccidioidomycosis): II. Primary Type of Infection. E. C. Dickson, San Francisco, and Myrnie A. Gifford, Bakersfield, Calif.—p. 853.
Pulsating Angioma (Generalized Telangiectasia) of Skin Associated with Hepatic Disease. D. H. Williams and A. M. Snell, Rochester, Minn.—p. 872.
Review of Neuropsychiatry for 1938. S. Cobb, Boston.—p. 883.

Carbohydrate Metabolism in Hepatitis.—Conn and his colleagues studied the nature of the disturbed carbohydrate metabolism associated with chronic ascending infectious hepatitis in six cases. All exhibited periods of spontaneous hypoglycemia. The glycemic response to ingested dextrose was grossly abnormal. A short period of fast or of carbohydrate restriction resulted invariably in severe hypoglycemia. Data obtained by indirect calorimetry indicated normal oxidation of dextrose under a variety of conditions. Besides the disturbance in carbohydrate metabolism, microscopic examination of biopsy or necropsy material showed chronic cholecystitis and ascending infectious hepatitis leading to early biliary cirrhosis. The authors believe that this disturbance in carbohydrate metabolism, although common, is frequently unrecognized or interpreted wrongly. In the early stage the glycogenic function of the liver appears to be seriously impaired. Since in their cases a hyperglycemic response occurred after ingestion of dextrose and since dextrose was oxidized at the normal rate under the same conditions, the excess dextrose in the blood stream must be explained by impaired glycogenesis. They believe that this impairment in glycogenesis is one of rate rather than one of total disability, since the blood sugar returns to the fasting level in from four to five hours after ingestion of dextrose and since removal of dextrose is not explained by increased oxidation. The slow rate of glycogenesis accounts for the prolonged hyperglycemia. This delayed removal from the blood stream of absorbed carbohydrate results in postprandial hyperglycemia and glycosuria. Recovery of the glycogenic function appears to parallel the disappearance of the active infection. With the involvement of the glycogenolytic function of the liver, periods of hypoglycemia become manifest. This may be easily mistaken for hyperinsulinism. Respiratory data obtained during the hypoglycemic phase of this disturbance indicate that the low blood sugar levels are not the result of overoxidation of dextrose, as is the case in true hyperinsulinism. Hyperglycemia and glycosuria simulating diabetes mellitus may be a manifestation of one phase of hepatic dysfunction, and periodic spontaneous hypoglycemia may be the manifestation of further hepatic injury in the same patient at different times in the course of hepatitis. This suggests that the hypothetic conception of "dysinsulinism" is probably not the true underlying physiologic mechanism involved in many cases. Since oxidation of dextrose is normal in both the hyperglycemic and the hypoglycemic phases, it appears that hypo-insulinism alternating with hyperinsulinism is not the explanation. Hepatogenic hypoglycemia seems a more likely explanation. Even though the anatomic changes in the liver may be slight, the presence of chronic biliary infection may lead to functional disturbances in the metabolism of carbohydrate. A short period of fast or sharp restriction of the intake of carbohydrate gave rise in the authors' patients to extremely low blood sugar levels. It appears that this response to carbohydrate restriction is a sensitive test of the ability of the liver to deal normally with carbohydrate. Patients who suffer from periodic spontaneous hypoglycemia or whose dextrose tolerance curves are suggestive of diabetes in association with a low blood sugar level during fasting should be investigated for the presence of infection of the biliary tract. The condition may be greatly helped or even alleviated to the stage of clinical cure if the diagnosis of infectious hepatitis is made early and if appropriate surgical treatment is instituted.

Fatal Anaphylactic Shock in Man.—Ziskind and Schattenberg report a case of fatal anaphylactic shock following the second intravenous injection of a foreign protein. At necropsy the gross pathologic changes were congestion of the liver and more moderate congestion of the other organs. General enlargement of the lymph nodes and a persistent thymus gland were also noted. The significant microscopic changes were dilatation and congestion of the hepatic sinusoids and the alveolar capillaries of the lungs. There was an apparent relative increase in the leukocytes and the eosinophils within these vessels. The alveoli were compressed in some areas and dilated in others, and in some instances their walls were ruptured. The malpighian corpuscles of the spleen were increased in size and had large germinal centers. It is suggested that the mechanism of death of this patient was capillary dilatation, especially of the liver, with a corresponding fall in blood pressure and cardiac failure.

Coronary Occlusion With and Without Pain.—In a study of the clinical histories and necropsy data for 100 patients with proved coronary occlusion, Gorham and Martin found that forty-two patients had no cardiac pain, indicating a higher frequency of painless occlusion than is generally recognized. The fifty-eight patients who suffered from cardiac pain in a fatal attack tended to be younger. The peak mortality was ten years earlier in men than in women. A history of preceding attacks of anginal pain and of hypertension was more common, pain overshadowed dyspnea as a symptom and a pericardial friction rub was heard much more often. Actual thrombosis, acute infarction, acute pericarditis and milder grades of coronary sclerosis were encountered more frequently in this group of fifty-eight patients. The location of the infarct

and the rupture of the ventricle, with resulting hemopericardium, bore no relation to pain. The forty-two patients who had no pain in a fatal attack of coronary occlusion tended to be older than those who had pain, the peak mortality was a decade earlier in men, a history of preceding attacks of anginal pain and of hypertension was less common, dyspnea was generally a prominent symptom and a pericardial friction rub was rarely heard. Old infarcts, with absence of actual thrombosis and pericarditis, were more frequent. Sclerosis of the coronary arteries was slightly though not significantly encountered more often. The location of the infarct and the rupture of the ventricular wall, with resulting hemopericardium, bore no direct relation to the absence of pain. The authors have reexamined the old mechanical theory of cardiac pain advocated by Allbutt and Wenckebach and more recently by Herrmann, which has been generally discarded in favor of Lewis's theory of ischemia in the light of their study, and the role of a tension factor has been emphasized. The tension factor seems to offer a reasonable explanation not only for the presence but for the absence of pain in cases of coronary occlusion. Added support for the importance of the factor of tension in the production of cardiac pain has been obtained by an experimental study on animals.

Archives of Physical Therapy, Chicago

19: 593-656 (Oct.) 1938

Contributions of Physical Therapy to Medicine. F. H. Krusen, Rochester, Minn.—p. 597.
Clinical Aspects of Reaction of Degeneration. J. F. Bateman, Columbus, Ohio, and B. Billman, Cincinnati.—p. 603.
Treatment of Painful Bursae of the Shoulder. A. A. Martucci, Philadelphia.—p. 611.
Fever Therapy in Ocular Diseases. J. M. Berris and M. K. Newman, Detroit.—p. 615.
Sterility of Male Animals Induced by Radiant Heat. U. Giles, A. L. Harvey and F. W. Dampere, New Orleans.—p. 619.
Physical Therapy and Occupational Therapy in Fractures. H. E. Mock, Chicago.—p. 625.
Low Voltage Wave Current in Vascular Therapy. E. Bettmann, New York.—p. 633.

California and Western Medicine, San Francisco

49: 353-424 (Nov.) 1938

Induction of Labor: Some Difficulties. W. B. Thompson, Los Angeles.—p. 358.
Estrogenic Hormones: Their Clinical Usage. C. F. Fluhmann, San Francisco.—p. 362.
Muscle Grafts: In the Surgery of the Heart and Lungs. H. B. Stephens and H. Benteen, San Francisco.—p. 366.
*Geriatrics: Contribution of Twenty-Five Carefully Studied Patients Who Are Active and in Good Health Beyond Eighty Years of Age. L. J. Brunie, Pasadena.—p. 369.
Health Protection and Care for the Less Than Two Thousand Dollar Group. N. G. Hale, Sacramento.—p. 372.
Value of Diet Analysis in Pediatric Practice. Rieta C. Hough and M. J. Walsh, San Diego.—p. 374.

Longevity.—Brunie chose for study thirteen men and twelve women active and in good health in the ninth decade of life. The study includes careful medical, dietary and social history, physical examination, blood count, urinalysis, an electrocardiogram and a fluoroscopic examination of the chest. By "active and in good health" he means that these persons were driving their own automobiles, some were still working for a livelihood and many were active in play—trap shooting, going to the races and theater, and even dancing and golf. Most of them took genuine interest in a variety of hobbies. Mentally they were all active and alert. Heredity, without question, is the fundamental requirement for longevity. In the present series there was only one person who did not have immediate relatives—that is, parents or grandparents, brothers or sisters—who had lived or were living beyond 75 years. The incidence of infection in their lives was relatively unimportant. Most of them had had the usual childhood diseases. Three had pneumonia in adult life and four had influenza at the time of the 1918 epidemic. Four gave histories of tonsillitis. One third of the group gave histories of migraine headaches occurring in earlier life, although none of them complained of more than occasional mild headaches at the present time. An interesting endocrine factor is that 60 per cent of the men had retained their sexual powers to an average age of 80 years. This would indicate that their general endocrine systems were still functioning. There was no case of syphilis and only one mild case of tuberculosis. One person, a man, recovered from pneumonia at the age of 91 years. Study revealed that moderation rather than abstinence was the rule for these people. Obesity shortens life, and none of these people were overweight. True arteriosclerosis was not present in any of the subjects.

Canadian Public Health Journal, Toronto

29: 477-526 (Oct.) 1938

The Present Problem in Infant Mortality. L. A. Pequegnat, Toronto.—p. 477.
Demonstration of Types of Bacillus Typhosus by Means of Preparations of Type II Vi Phage: II. Stability and Epidemiologic Significance of V Form Types of Bacillus Typhosus. J. Craigie and Chun Hui Yen, Toronto.—p. 484.
Diphtheria Immunization, with Special Reference to Local Campaign. L. M. Morton, Yarmouth, N. S.—p. 497.
Seasonal Variation in Response of Guinea Pigs to Toxoid. G. D. W. Cameron, Toronto.—p. 500.
The Public Health Nurse in Venereal Disease Control. Margaret Norton, Brantford, Ont.—p. 504.
Some Industrial Skin Lesions. H. L. Scammell, Halifax, N. S.—p. 508.

Delaware State Medical Journal, Wilmington

10: 223-238 (Nov.) 1938

Exophthalmic Goiter: Its Medical Treatment: End Results in 2,600 Cases. I. Bram, Philadelphia.—p. 223.
Trichiniasis: Report of Five Cases. E. R. Miller, Wilmington.—p. 229.
To the Nurses. D. J. Layton, Georgetown.—p. 233.

Iowa State Medical Society Journal, Des Moines

28: 525-598 (Nov.) 1938

Management of Skull Fractures and Cerebral Injuries. H. E. Mock, Chicago.—p. 525.
Recent Advances in Chest Surgery. N. B. Anderson, Des Moines.—p. 536.
Study of Meningeal Permeability, with Special Regard to Influence of Sterile Meningitis on Permeability Quotients of Schizophrenics. S. L. Sands, Iowa City.—p. 539.
Treatment of Convergent Squint in Private Practice. J. A. Thorson, Dubuque.—p. 547.
Retrobulbar Neuritis of Uncertain Origin. E. C. Nowak, New Hampton.—p. 551.
*Sublethal Pulmonary Emboli. D. H. Kaump and V. C. Robinson, Des Moines.—p. 554.

Sublethal Pulmonary Emboli.—From a study of five cases it is apparent to Kaump and Robinson that the picture in sublethal embolus is exactly that presented by a lethal embolus except for the lesser gravity of the symptoms. The predominant symptoms in sublethal embolus included anxiety of the patient, cough with bloody sputum in one instance, cyanosis, dyspnea, rapid pulse and chest pain. The diagnosis of sublethal embolus must be suspected in the presence of any or all of these symptoms. Occasionally a patient is seen who has only a slight dyspnea, slight chest pain and minor evidences of shock. In the differential diagnosis, coronary thrombosis and pulmonary arteriolar sclerosis must be considered. The predisposing factors in the patients with sublethal embolus include previous heart disease, four out of five, and obesity, three out of five. Next to the prevention of embolus formation the second most important factor is the recognition of sublethal embolus when it does occur. If the symptoms of sublethal embolus were recognized more frequently, simple prolonged rest might prove valuable in the prevention of the second and often fatal embolic attack.

Journal of Immunology, Baltimore

35: 329-414 (Nov.) 1938

Concentration of Tetanic Antitoxin by Adsorption. D. von Klobusitzky, São Paulo, Brazil.—p. 329.
Influence of Alarm Reaction on Development of Anaphylactic Shock. S. Karady, H. Selye and J. S. L. Browne, Montreal.—p. 335.
Antigenic Structure of Shigella Alkalescens (Andrewes) and Demonstration of Antibodies in Serum of Patients with Shigella Alkalescens Infections. E. Neter, Buffalo.—p. 339.
Photodynamic Action of Methylene Blue on Antipneumococcus Serum. V. Ross, New York.—p. 351.
Photodynamic Action of Methylene Blue on Diphtheric Antitoxin. V. Ross, New York.—p. 371.
Character of Dissociative Changes in Escherichia Coli Affecting Immunizing Values. J. C. Torrey, New York.—p. 379.
Antigenic Qualities of Antitoxins. A. J. Weil, I. A. Parfentjev, Pearl River, N. Y., and K. L. Bowman, Brooklyn.—p. 399.

Journal of Infectious Diseases, Chicago

63: 129-224 (Sept.-Oct.) 1938

Small Colony Variation in Bacillus Paratyphosus B (Tidy) and Other Bacteria, with Special Reference to the G Type of Hadley. A. Haddow, Edinburgh, Scotland.—p. 129.

Demonstration of Plasma Anticoagulant in Exudates of Bacterial Origin. E. Neter, Buffalo.—p. 193.

Studies in Metabolism of Coccidioides Immitis (Stiles). R. A. Stewart and K. F. Meyer, San Francisco.—p. 196.

Response of Specifically Immunized Mice to Reinoculation with Virus of St. Louis Encephalitis, with Especial Attention to the Development of Myelitic Symptoms. Enid A. Cook, Chicago.—p. 206.

Effect of Splenectomy and Blockade on Protective Titer of Antiserum Against Trypanosoma Equiperdum. L. R. Kuhn, Chicago.—p. 217.

Journal of Nutrition, Philadelphia

16: 407-510 (Nov.) 1938

Ascorbic Acid Content of Chick Blood. A. D. Holmes and F. Tripp, Boston, and G. H. Satterfield, Raleigh, N. C.—p. 407.

Does Fat in the Diet Affect the Thyroid? R. E. Remington, Charleston, S. C.—p. 417.

*Availability of Iron in Various Foods. Leah Ascham, Mary Speirs and Dorothy Maddox, Experiment, Ga.—p. 425.

Quantitative Study, by Means of Spectrographic Analysis, of Copper in Nutrition. Florence I. Scoular, Iowa City.—p. 437.

Histopathology of Neuromalacia and "Curled Toe" Paralysis in the Chick Fed Low Riboflavin Diets. P. H. Phillips and R. W. Engel, Madison, Wis.—p. 451.

Toxicity of Aspergillus Sydowi and Its Correction. D. W. Woolley, J. Berger, W. H. Peterson and H. Steenbock, Madison, Wis.—p. 465.

Effect of Exercise and Chills on Heat Loss from the Nude Body. J. D. Hardy, Ade T. Milhorat and E. F. Du Bois, with technical assistance of G. F. Soderstrom, New York.—p. 477.

Heat Loss from the Nude Body and Peripheral Blood Flow at Temperatures of 22 to 35 C. J. D. Hardy and G. F. Soderstrom, New York.—p. 493.

Availability of Iron in Foods.—Ascham and her collaborators determined the hematopoietic value of certain leafy vegetables which are important sources of iron in southern dietaries. They found that a greater hemoglobin gain was obtained with the canned leaves plus the cooking liquid of turnip greens and collards than with the dried forms of these greens. The iron of the canned turnip green leaves was less available than that of the dried greens. The foods studied fall into the following descending order in respect to the availability of their iron for the regeneration of hemoglobin: black-eyed peas and spinach, turnip greens and kale, collards and mustard, head lettuce and, finally, tender-green and leaf lettuce. In these foods the ionizable iron and the iron available for hemoglobin synthesis were not identical.

Journal of Pediatrics, St. Louis

13: 619-804 (Nov.) 1938

Inspissation of Secretion, Dilatation of Ducts and Acini, Atrophy and Fibrosis of Pancreas in Infants: Clinical Note. K. D. Blackfan and C. M. May, Boston.—p. 627.

Carotinoids and Vitamin A of the Blood. S. W. Clausen and A. B. McCoord, Rochester, N. Y.—p. 635.

*Experimental Therapy of Acute Leukemia with Extracts of Bone Marrow. J. V. Cooke, St. Louis.—p. 651.

Importance of Deficit of Sodium and Chloride in Dehydration. D. C. Darrow, New Haven, Conn.—p. 670.

Accomplishments in Maternal and Child Health and Crippled Children Services Under the Social Security Act. Martha M. Eliot, Jessie M. Bierman and A. L. Van Horn, Washington, D. C.—p. 678.

Further Observations on Metabolism and Clinical Uses of Sodium Lactate. A. F. Hartmann, Anne M. Perley, J. Basman, Martha V. Nelson and Cécile Asher, with technical assistance of Marie Morton, St. Louis.—p. 692.

Acute Epidemic Encephalitis in St. Louis. T. C. Hempelmann, St. Louis.—p. 724.

Effect of Vitamin D on Linear Growth in Infancy: II. Effect of Intakes Above 1,800 U. S. P. Units Daily. P. C. Jeans and Genevieve Stearns, Iowa City.—p. 730.

Encephalitis Rheumatica (Chorea Minor of Sydenham): Its Diagnosis and Course. H. McCulloch, St. Louis.—p. 741.

Irregular Extensions of End of Shaft in X-Ray Photograph in Congenital Syphilis, with Pertinent Observations. E. A. Park and Deborah A. Jackson, Baltimore.—p. 748.

Remarks on Case of Congenital Idiopathic Hypertrophy of the Heart. G. F. Powers and P. M. LeCompte, New Haven, Conn.—p. 760.

*Diabetes and Pregnancy: Observations on Offspring with Pathologic Report. F. S. Smyth and Mary B. Olney, San Francisco.—p. 772.

Congenital Hypertrophic Pyloric Stenosis, with Special Reference to Surgical Treatment. K. H. Tallerman, London, England.—p. 787.

Systematic Health Work for Mother and Child. K. Utheim-Toverud, Oslo, Norway.—p. 796.

Acute Leukemia and Extracts of Bone Marrow.—Cooke tested the validity of a new hypothesis as to the nature of leukemia. The hypothesis assumes that acute leukemia is due to an acquired defect in normal marrow function characterized by the inactivation or destruction of one of the normal factors in hematopoiesis. After making a few observations with the use of extracts of liver, spleen and thymus, without apparent effect, the action of extracts of fresh red bone marrow on acute leukemia was studied. A study of the patients with acute leukemia treated with bone marrow extracts shows two with complete remission of two and four months, two with similar complete remissions for shorter periods, two with marked increase in maturation of granular leukocytes, four in whom the disease remained clinically arrested or quiescent for from three to six months, two in whom rather prompt decrease in the size of leukemic enlargements of the lymph nodes and spleen was observed after the treatment was given and other patients in whom neither the clinical course nor the leukemic blood picture was affected. That the bone marrow extract employed was responsible for any or all the favorable changes observed is without proof. All patients received transfusions at intervals and other symptomatic treatment. It is true, however, that of fifty patients with acute leukemia from the same clinic and under observation during the ten years preceding these experiments, who were also given frequent transfusions, none showed a remission or any increase in the granular leukocytes to the degree observed in certain of the present patients. The evidence furnished by the observations is inconclusive, but the improvement in at least six cases did not appear to be merely coincidental. However, if the changes observed were related to the replacement of some deficiency in a physiologic mechanism the stimulation was inadequate and incomplete, since even those patients with remissions relapsed and later injections were relatively impotent. The author believes that a definite effect on the disease was produced but that it was only partial and imperfect, as though only one of possibly several necessary substances was being supplied and that only sufficient to modify the progress of the disease.

Diabetes and Pregnancy.—Smyth and Olney state that since 1922 nineteen infants have been born of women whose pregnancy was considered complicated by diabetes. In fourteen of the mothers glycosuria appeared only with gestation and was controlled by diet or by diet and temporary use of insulin, which suggests glycosuria from causes other than diabetes mellitus. Of the entire group, eleven gave birth to excessively large infants. The infant's blood sugar, even allowing for the effect of predelivery insulin, may be low. The cord blood sugar may anticipate this finding by showing a much lower level than that of the maternal blood taken simultaneously. In two of the infants projectile vomiting and cyanosis were striking features, quite possibly related to persistent hypoglycemia. This interpretation circumvented pyloroplasty, which was suggested for one of the infants. The use of subcutaneous dextrose appeared extremely valuable in carrying the infants through a critical period, after which an apparent adjustment was made. A follow-up of one patient showed a hyperinsulin-like sugar curve at 4 years of age. Reports of postmortem studies of infants born of diabetic mothers vary. In some no hyperplasia of islet tissue has been found, and the hypoglycemia must be considered functional in type. In others the finding of hypertrophy and hyperplasia of the islets of Langerhans makes the correlation obvious. The relative macrosomia, advanced bone age and more mature genital tract suggest a pituitary effect. Complete endocrine pathologic study is reported but the interrelationship is best described as dysfunction. Perhaps some interrelationship will be found to account for the mild as well as the fatal hypoglycemia of the newborn infant. Fetal glycogen storage hypertrophy also is postulated as a possible cause for some of the pathologic signs.

Medical Annals of District of Columbia, Washington

7: 335-370 (Nov.) 1938

Study of Cystine and Tryptophan Content of Normal and Pathologic Serums. H. S. Milone and M. X. Sullivan, Washington.—p. 335.

Chronic Sinusitis in Children, with Special Reference to X-Ray Therapy. P. A. McLendon, Washington.—p. 341.

Value of Combined Measurements of Circulation Time and Venous Pressure in Heart Failure. H. H. Hussey, Washington.—p. 350.

Chronic Constrictive Pericarditis (Chronic Cardiac Compression): Report of Three Cases Successfully Operated on. W. M. Yater, Washington.—p. 354.

Medical Bull. of Veterans' Adm., Washington, D. C.

18:99-216 (Oct.) 1938

One Year's Experience with Pharmacologic Shock Therapy of Chronic Schizophrenia. C. N. Baganz.—p. 99.
Heart Weight and the Measurement of Cardiac Silhouette. J. A. Reisinger and Blanche B. Wilcox.—p. 108.
Avertin Basal Anesthesia with Ether, Nitrous Oxide Oxygen and Ethylene; from an Observation of 500 Cases. G. A. Resta.—p. 118.
Ganglionectomy in Vascular Disturbances of Extremities. H. E. Bundy.—p. 121.
Survey of Results of Operative Intervention in Various Surgical Disorders of Psychotic Patients, with Consideration of Feasibility of Major Collapse Measures in Tuberculous-Psychotic Patients. W. A. Loeb and E. A. Wilcox.—p. 124.
Standardization of Methods of Diagnosis of Tuberculosis in Psychotic Patients. T. J. Hardgrove.—p. 131.
Cerebral Accidents. H. Rubin.—p. 135.
Sabel's Hypoglycemic Insulin Treatment of Psychoses. L. H. King.—p. 141.
Coexistence of Pulmonary Tuberculosis and Syphilis. W. C. Nalty.—p. 151.
Nontuberculous Respiratory Diseases. E. J. Kehoe.—p. 155.
Use of Protamine Insulin. S. E. Walker.—p. 160.
Disability from Weak Foot. I. H. Russotto.—p. 163.
Management of Sinusitis. O. N. Nelson.—p. 167.
Early Diagnosis of Intestinal Tuberculosis. J. C. Herrick.—p. 172.

Minnesota Medicine, St. Paul

21:745-816 (Nov.) 1938

Influence of Age-Determined Factors on Development of Tuberculosis. A. R. Rich, Baltimore.—p. 745.
Roentgenography of Pulmonary Tuberculosis: New Method for Group Surveys. H. E. Potter, Chicago.—p. 763.
The Foot and Ankle: Their Discomforts, Deformities and Disabilities. P. Lewin, Chicago.—p. 769.
Authentic Biographic Data. M. C. Piper, Rochester.—p. 776.
Nutrition in Pregnancy. R. J. Moe, Duluth.—p. 779.
Inflammatory Lesions of Cervix and Vagina. L. W. Barry, St. Paul.—p. 784.
Obstetric Hemorrhage. R. E. Swanson, Minneapolis.—p. 788.

Missouri State Medical Assn. Journal, St. Louis

35:423-466 (Nov.) 1938

Puerperal Infection. P. Findley, Omaha.—p. 423.
Country Obstetrics: Review of 600 Cases. W. J. Shaw, Fayette.—p. 426.
Tuberculosis Complicating Pregnancy: Treatment: Report of Cases. A. C. Henske, St. Louis.—p. 430.
Evaluation of Mental Factor in Treatment of Physical Disorders. F. A. Carmichael, Fulton.—p. 436.
*The Neurotic Factor in Disease. R. E. Britt, St. Louis.—p. 440.
Effect of Work on the Heart. D. G. Stine, Columbia.—p. 443.
Role of Parasympathetic Nervous System in True Enuresis. A. Bleyer, St. Louis.—p. 447.
Infant Feeding: Some Practical Suggestions. C. B. Summers, Kansas City.—p. 449.

The Neurotic Factor in Disease.—Britt reviewed more than 500 cases with psychiatric implications admitted to the Firmin Desloge Hospital between 1933 and 1938. In two thirds of these the problem was essentially that of organic disease of the central nervous system brought about through vascular change, trauma, cerebral tumor or infection. Of the remaining third, approximately 40 per cent presented classic mental conditions recognizable as neuroses and psychoses, whereas the remainder, about 120, were mixtures of physical complaints complicated by the attitudes of the patients influencing to varying degrees the onset and course of the disease. In every instance the patient had been admitted to the hospital primarily for some definite physical condition the signs and symptoms of which were unmistakable. To do justice to the patient the physician must take into consideration not only the laws of laboratory procedure but also the laws which regulate the reaction of man to his environment even though these laws cannot be formulated in mathematical or precise physical terms. The emotional and instinctive life of the patient, the family pattern, economic and social situations, may be essential factors in understanding and treating patients when symptoms may not at first suggest a complex origin. A consideration of these factors makes intelligible such symptoms as persistent headache, insomnia, gastrointestinal disturbances, fainting, palpitation, variations in blood pressure, the frequency of attacks of vertigo, refractive disorders and pelvic and abdominal complaints. These symptoms are understandable oftentimes as expressions of both physical and mental inadequacy which may be symptomatic of some definite physical disease, its so-called psychic component.

New England Journal of Medicine, Boston

219:731-776 (Nov. 10) 1938

Innocent Gallstones and Harmful Cholecystectomy? D. Cheever, Boston.—p. 731.
*Thiocyanate Therapy in Vascular Hypertension. E. Massie, C. B. Ethridge and J. P. O'Hare, Boston.—p. 736.
Value of Palliative Surgical Therapy in Advanced Carcinoma of Gastrointestinal Tract. C. G. Mixter, Boston.—p. 740.
Angina Pectoris and Its Relation to Coronary Artery Disease. S. A. Levine, Boston.—p. 743.
Recurrent Appendicitis. C. A. Lamb, Boston.—p. 746.

Thiocyanate Therapy in Hypertension.—Massie and his associates administered sodium thiocyanate, according to the method of Barker, under carefully controlled conditions to fourteen patients suffering from uncomplicated vascular hypertension. Before the administration of sodium thiocyanate was begun, all direct treatment was discontinued and control observations were made for three months. There followed a test period of like duration during which a 5 per cent solution of sodium thiocyanate in syrup of wild cherry was given orally. This interval was followed by another control period of three months during which the syrup alone was administered in comparable dosage; the patient remained unaware that the active medication had been omitted. A definite lowering of the blood pressure occurred during the interval of treatment. Compared with the first control period, the average fall in the systolic pressure ranged from 66 to 21 mm. of mercury and the average fall in the diastolic pressure from 33 to 8 mm. The blood pressure in each case generally rose during the second control period, so that eventually the levels noted in the initial control period were approximated. The principal complaints attributable to hypertension were persistent and troublesome headache, nervousness and mild vertigo. These symptoms either decreased appreciably or disappeared entirely under treatment in twelve cases. Insomnia was markedly relieved, so that sound sleep at night was more readily secured. Unusual activity, excitement and emotional upsets were well borne. Symptoms which had been relieved during thiocyanate therapy gradually returned with all their original severity during the second control period when the drug was surreptitiously omitted. Gradually, the blood pressure rose again. The toxic symptoms observed were occasional episodes of transient weakness and infrequent attacks of mild epigastric distress. In addition, nausea, vomiting and marked weakness occurred in one patient and three attacks of angina pectoris in another. Individualization of dosage is required for each patient, frequent blood cyanate determinations and sufficient intelligence on the part of the patient to permit an awareness of early toxic symptoms. For his own safety the patient must be cautioned regarding the symptoms of asthenia and nausea so that the more serious forms of toxicity may be avoided.

Northwest Medicine, Seattle

37:343-378 (Nov.) 1938

New Plans for Medical Practice. C. T. Sweeney, Medford, Ore.—p. 346.
Nutritional Deficiencies Complicating Surgery of Gastrointestinal Tract. D. Metheny, Seattle.—p. 349.
Renal Tuberculosis. C. D. Donahue, Eugene, Ore.—p. 350.
Nephrectomy Twenty-Five Years After Ureterocolostomy: Instance of Pneumopyonephrosis. R. Falk and R. S. Smith, Boise, Idaho.—p. 353.
Metrazol Therapy in Schizophrenia. N. K. Richter, Seattle.—p. 355.
Rapid Technic for Tonsillectomy Which Avoids Hemorrhage. R. W. Kullberg, Astoria, Ore.—p. 358.

Oklahoma State Medical Assn. Journal, McAlester

31:367-398 (Nov.) 1938

Bronchoscopy in Oklahoma. L. C. McHenry, Oklahoma City.—p. 367.
Observation from the Current Year's Experience with Medical Cases in a Children's Hospital. F. C. Neff, Kansas City, Mo.—p. 370.
Acute Appendicitis. H. Reed, Oklahoma City.—p. 376.
Cavernous Sinus Thrombosis: Case Reports. T. G. Wails, Oklahoma City.—p. 378.
Lateral Sinus Thrombosis. D. L. Mishler, Tulsa.—p. 381.

Public Health Reports, Washington, D. C.

53: 1961-1990 (Nov. 4) 1938

Isolation of Actinomyces Bovis from Tonsillar Granules. C. W. Emmons. —p. 1967.

53: 1991-2024 (Nov. 11) 1938

*Incidence and Future Expectancy of Mental Disease. H. F. Dorn.—p. 1991.
Studies on Mechanism of Experimental Intranasal Infection in Mice. C. Armstrong.—p. 2004.

Incidence and Expectancy of Mental Disease.—Dorn points out that it is commonly believed that the proportion of the population suffering from mental disease is increasing. For the country as a whole the number of persons hospitalized for mental disease increased more than 40 per cent from 1926 to 1936. The most common explanation for the apparent increase in the incidence of mental disease is the complexity and strain of metropolitan life. Owing to the fact that there is no sharp line of demarcation between normality and abnormality, it is practically impossible to decide whether or not the relative number of persons with mental disease is increasing. Fundamentally mental disease is a cultural concept and varies from one group to another. In some situations the mentally deranged have become soothsayers, medicine men, prophets or group leaders; in other situations the same persons would be incarcerated. From an analysis of the first admissions to mental hospitals in Massachusetts, New York and Illinois this commonly believed increase is not borne out. The number of first admissions per hundred thousand of population decreased among women under 70 years of age in each state. In Massachusetts the same was true for men. In New York and Illinois commitment rates decreased at the younger ages, but after 45 or 50 years of age an increase occurred. Nevertheless mental diseases constitute an important health problem. Unless there is a decrease in the first admission rates to mental hospitals, from 110,000 to 120,000 of the 2,144,800 infants born during 1936 will eventually be committed to a hospital for mental disease. This number excludes the emotionally unstable and unbalanced persons who should be included in a comprehensive mental hygiene program. Owing to the increasing proportion of the population in the older age groups and the increase in life expectancy, an increase in the number of admissions to mental hospitals is to be expected in the future, since rates of mental disease are highest at the older ages. Assuming that the commitment rates for mental disease for the total United States are no greater in 1960 than they were in New York state from 1929 to 1931 inclusive, it is estimated that about 135,000 persons will be committed annually to a mental hospital for the first time. This is nearly twice the present number of first commitments.

Puerto Rico J. Pub. Health & Trop. Med., San Juan

14: 1-90 (Sept.) 1938

Rosets in Rat Leprosy. E. V. Cowdry and A. Ravold, San Juan.—p. 3.
Filariasis in Puerto Rican Soldiers: Survey. A. G. Oliver and J. Oliver, San Juan.—p. 18.
Planorbis Corneus Not an Intermediate Host of Schistosoma Mansoni. W. A. Hoffman, San Juan.—p. 24.
Gallbladder Disease in Puerto Rico. F. G. Irwin and A. R. Oller, San Juan.—p. 28.
Chromoblastomycosis in Puerto Rico. A. L. Carrión, San Juan.—p. 37.

Southwestern Medicine, El Paso, Texas

22: 429-468 (Nov.) 1938

What Next in Medicine? L. S. Peters, Albuquerque, N. M.—p. 429.
*Atherosclerosis, Angina and Allergy. G. Werley, El Paso, Texas.—p. 431.
The Endocrinology of Prostatic Hypertrophy. E. Belt, Los Angeles.—p. 434.
Abdominal Surgery and Wangensteen Suction. J. L. Green and H. H. Varner, El Paso, Texas.—p. 439.
Toxemia of Pregnancy. A. J. DePinto, Phoenix, Ariz.—p. 443.
Lead Absorption and Lead Poisoning: III. J. Rogde, El Paso, Texas. —p. 445.
Extra-Uterine Pregnancy of Twenty-Nine Years' Duration with Incidental Ovarian Carcinoma: Case Report. H. M. Mortimer and F. H. Crail, Las Vegas, N. M.—p. 447.

Atherosclerosis, Angina and Allergy.—Werley states that coronary sclerosis is found in from 20 to 30 per cent of all men beyond 40 years of age. Anginal attacks are rare in comparison. Many die of acute coronary obstruction with no history of angina pectoris. Of eighty-seven of his cases of cardiac infarct, only nineteen previously had definite anginal attacks. White states that a sensitive person, especially one with capacity for vascular spasm, may suffer from angina pectoris with relatively little coronary disease behind it, or in rare cases none at all, while an insensitive person may have an appalling amount of disease or even chronic occlusion of both coronary arteries with no pain whatever. The author believes that this hypersensitive group will often be found to be allergic. However, there may be other reasons for the hypersensitivity of the coronary arteries. Angina and coronary sclerosis go together. The presence of angina is a signal of danger that if heeded and followed by correction, especially of bad eating habits, may actually prolong life and thus be advantageous. There is no reason why the coronaries should be exempt. Allergy manifests itself by spasm of smooth muscle especially in the smaller arteries. There is dilatation of capillaries and exudation. The reaction is most violent in those arteries with the most smooth muscle in their walls. In man, the coronary arteries have a heavier coat of unstriped muscle than any other artery of similar size in the body. So, if the law holds, this should be a favorable site for allergic reaction. The author thinks that this may be one reason why the coronary arteries are more often sclerotic than other arteries of their size in other situations. Periarteritis nodosa shows that allergy may manifest itself in the coronary arteries. In the search for the causes of coronary sclerosis and angina pectoris, suspicion has fallen on many things, especially the hectic life of modern civilization. Generally the chief cause of angina pectoris and coronary sclerosis can be traced to what has gone down the gullet. Other factors are of secondary importance. Regardless of other factors, obesity generally comes from eating too much and especially too much fat, along with which always goes cholesterol, the one important cause of atherosclerosis.

Wisconsin Medical Journal, Madison

37: 973-1052 (Nov.) 1938

Pneumoperitoneum: Preliminary Report. E. R. Daniels and P. L. Eisele, Stateson.—p. 989.
Nonspecific Infections of the Urinary Tract. C. R. Marquardt, Milwaukee.—p. 994.
Chronic Nasal Sinus Disease. I. Muskat, Chicago.—p. 997.
Unusual Case of Intestinal Obstruction. W. O. Paulson and L. M. Garrett, Eau Claire.—p. 1001.
*Low Fat Evaporated Milk in Infant Feeding. A. C. Edwards, Madison. —p. 1004.
Preoperative Treatment. I. Schulz, Milwaukee.—p. 1006.
Polyneuritis: Metabolic Disorder: Diagnosis and Treatment. Mabel G. Masten, Madison.—p. 1009.

Low Fat Evaporated Milk in Infant Feeding.—Edwards proposes a modification to the evaporated milk formula in order to overcome the difficulties (vomiting, obesity and allergy) encountered in infant feeding with the use of concentrated evaporated milk in private practice. The new product that he suggests using consists essentially of half skimmed evaporated milk prepared by a Wisconsin condensery. This modified milk may be conveniently used for feeding normal infants by diluting it, as recommended by Marriott and Brennemann in the case of regular evaporated milk, with an equal quantity of water and 2 ounces (60 Gm.) of a soluble carbohydrate (a preparation of dextrin and maltose) added to each quart of mixture. Infants receiving the formula did as well as or better than expected. In all cases the digestion was as described by Brennemann in the case of regular evaporated milk. Infants less than 6 weeks of age tolerated it well after a few days on a slightly greater dilution. Vomiting was exceedingly rare. Practically all otherwise normal infants less than 6 months of age tolerated it well and the majority of them made satisfactory weight increases without, however, becoming obese. In the few in whom a more rapid gain was desired it was necessary only to change to a similar formula made with regular evaporated milk. A few infants were encountered whose nutrition and digestion progressed satisfactorily on regular evaporated milk formulas but who cried considerably and apparently had gastrointestinal allergy with symptoms of abdominal spasm. When these infants were given the proposed formula the majority of them improved. Overnourished infants with eczema seemed to fare better when appropriate local treatment was combined with a reduction in caloric intake including the substitution of modified milk for regular evaporated milk in their formulas.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

50: 575-636 (Nov.) 1938

Twenty-Five Years of Gold Treatment of Lupus Erythematosus. R. Sinclair.—p. 575.

*Description and Study of Area of Atrophic Skin Occurring in Men, with Its Relationship to the Common Type of Diffuse Alopecia of the Scalp. P. C. Robertson.—p. 581.

Did Columbus Discover Syphilis? V. Robinson.—p. 593.

Atrophic Skin in Men.—Robertson studied the state of the skin and hair of the legs and scalp of 1,171 men between the ages of 20 and 60 years. He found that in a proportion of adult men there occurs on the legs an area of skin with the following characteristics: 1. It is smooth, shiny and hairless and, on exposure to cold, has no goose-skin appearance. It is whiter than normal skin and looks thin and atrophic. 2. It occurs below the knee on the anterior lateral and posterior aspects of the leg and varies in size in different individuals. 3. Its position and extent on one leg are the same as on the other. 4. In appearance and texture it is similar to the bald skin in diffuse alopecia of the scalp. 5. It does not occur before puberty. 6. With the exception of the scalp, no similar area occurs elsewhere on the body. It was found that the majority of men who are bald on the scalp, 379 of the 1,171 men examined, are bald also on the legs, 408 of the entire group. Experiments on nerve and vascular supply carried out on the atrophic skin of the legs and scalp, when compared with shaved normal skin, showed that there is equal sensibility to touch, heat, cold and pain. The "nocifensor" reaction after injury is the same as in normal skin. The reaction to pricked-in epinephrine 1:1,000 and histamine acid phosphate 1:1,000 is the same as of normal skin. When the condition of the cutaneous atrophy on the legs is considered along with diffuse alopecia of the scalp, it is seen that in both conditions the hair loss and the cutaneous atrophy are bilaterally symmetrical (for the denudation of hair is symmetrically outlined on the two sides of the scalp, as it is also on the two legs) and that when there is baldness of the scalp there is generally baldness of the legs. These observations suggest a common causation; a general change occurring in the body. The nature of this change is suggested by consideration of the factors responsible for the maintenance of cutaneous and hirsute health. These factors are vascular supply, nerve supply and nerve influences and the composition of the blood. It therefore appears probable that the change in the body which is responsible for diffuse alopecia of the scalp and for the areas of the cutaneous atrophy on the legs is an alteration of the balance of endocrine secretion and is dependent on the integrity of the testicles. How this produces the cutaneous atrophy and why the areas affected should be localized on the scalp and legs are questions yet unanswered.

British Journal of Ophthalmology, London

22: 641-704 (Nov.) 1938

*Prescribing Light: Important Factor in the Care and Treatment of the Eye. C. E. Ferree and G. Rand.—p. 641.

Aplasia of the Optic Nerves. H. Ridley.—p. 669.

Effect of Section of Posterior Ciliary Arteries in the Rabbit. J. V. V. Nicholls.—p. 672.

Lighting.—Ferree and Rand contend that the eye, if it is to remain healthy or to cure itself of any of its ills, congenital or acquired, must first be put into a situation calling only for the healthy exercise of its normal functions. Important factors in this situation are the conditions under which it is ordinarily called on to work, the type of work and its illumination. The latter is the more amenable to variation and control. Radical changes cannot be made in the work itself, although the lighting of the work is possible and the more important angle of attack. Lighting equipment of sufficient range and flexibility has been devised, and a great deal of time has been spent in making it available to the public. Thus a new division of the subject of lighting has been created which belongs in its narrower and more technical aspects to the medical profession and in its broader and more general aspects to the welfare of the worker. The prescribing of light to meet the requirements of the individual person has become a practical possibility and when properly used it will be of significant service in the care and treatment of the eye. The need for it is acute in many of the cases which come under the physician's care.

Lancet, London

2: 983-1040 (Oct. 29) 1938

*Further Observations on Hormone Treatment of Imperfect Descent of Testis. A. W. Spence and E. F. Scowen.—p. 983.

Classification of Chronic Nephritis. J. B. Duguid.—p. 987.

*Chemotherapy in Measles and Whooping Cough: Prophylaxis and Treatment of Complications. A. R. Thompson and C. R. M. Greenfield.—p. 991.

Sulfanilamide in Treatment of Trachoma. R. Kirk, A. R. McKelvie and H. A. Hussein.—p. 994.

Hippuric Acid Synthesis in Schizophrenia. R. Ström-Olsen, G. D. Greville and R. W. Lennon.—p. 995.

Endocrine Treatment of Imperfect Descent of the Testis.—Spence and Scowen used gonadotropic substance in the treatment of sixty-five patients with undescended testes. Their conclusions are that treatment of retained testes with gonadotropic extract should be employed in those patients in whom retention does not appear to be due to an anatomic abnormality. The dose in most patients should not be less than 500 rat units intramuscularly twice a week. This treatment should not be employed in patients less than 10 years of age for fear of inducing a precocious puberty. The optimal age for treatment is between 10 and 14. All cases of retractile testes will respond to endocrine therapy within three months. Treatment, however, is unnecessary as they will descend spontaneously before or at puberty. Testes which are situated in the inguinal canal and are movable but cannot be manipulated into the scrotum will probably respond to endocrine therapy (76 in the bilateral and 64 per cent in the unilateral group). A successful result is unlikely if the retained testes are impalpable or are not freely movable. In cases of retained testes which will respond, a successful result will be obtained within six to nine months. If there is no improvement within six months an anatomic abnormality is probably present and the patient should be subjected to operation. An anatomic abnormality is more likely to be present in a unilateral than in a bilateral case. In patients in whom there is no doubt that an anatomic abnormality exists it is unwise to wait for spontaneous descent, as degenerative changes begin in a retained testis at puberty.

Chemotherapy in Measles and Whooping Cough.—In an attempt to assess the value of chemotherapy in the prophylaxis and treatment of complications, Thompson and Greenfield divided 1,219 cases of measles and 244 of whooping cough into a treated and a control group. The treated group of patients included a high proportion of more severe involvement who received sulfanilamide or benzylsulfonamide regularly from admission, the dosage being graded according to age and increased if any complications developed. In this group fewer complications developed than in the control group, the difference being greatest in the aural complications of measles and in the pulmonary complications of both diseases, tending toward a reduced stay in the hospital. Toxic effects were mild and the drugs were well tolerated by children over prolonged usage. The drugs gave encouraging results in young children, especially in bronchopneumonia, otitis media and catarrhs of the upper part of the respiratory tract. Sulfanilamide appeared to be more effective than benzylsulfonamide. Although the results have been encouraging, due allowance must be made for the mildness of the recent measles epidemic and the authors suggest that this form of therapy might be given a wider trial in future epidemics of a more virulent character.

Medical Journal of Australia, Sydney

2: 627-670 (Oct. 15) 1938

Oxygen Lack: Its Causes, Effects and Relief. H. W. Davies.—p. 627.

The Present Position of Surgery of Thyroid. H. R. G. Poate.—p. 635.

Review of the Problems of Suppurative Petrositis and of Its Surgical Treatment, Together with an Outline of the Prophylaxis and Treatment of Otitic Meningitis. D. G. Carruthers.—p. 644.

Cataracta Dermatogenes, or Cataract with Neurodermatitis Chronica. A. L. Tostevin.—p. 647.

Quarterly Journal of Medicine, Oxford

7: 495-592 (Oct.) 1938

*Anemia in Myxedema and Role of Thyroid Gland in Erythropoiesis. R. Bomford.—p. 495.
Staphylococcic Infections at Singapore. W. Hughes.—p. 537.
Hematopoietic Activity of Human Stomach in Pernicious Anemia. J. F. Wilkinson, L. Klein and C. A. Ashford.—p. 555.
Investigation into Treatment of Parkinsonism with Bulgarian Belladonna. N. S. Alcock and E. A. Carmichael.—p. 565.
*Observations on Relation of Leukocytosis to Ascorbic Acid Requirements. T. D. Cuttle.—p. 575.

Anemia in Myxedema and Erythropoiesis.—Bomford presents the results of observations made on ten patients with myxedema and anemia and shows that the thyroid plays no direct part in erythropoiesis, that anemia in myxedema, unless complicated by a deficiency of iron or liver, is a physiologic adaptation on the part of the erythron to a diminished need of the tissues for oxygen, and that such effects of the thyroid on erythropoiesis as have been observed are indirect results of changes in the rate of metabolism. He observed that three types of anemia are found in association with myxedema. The simple hyperchromic type is the uncomplicated anemia of myxedema. It is considered to be part of a decrease in the size of the erythron, which takes place in hypothyroidism as a physiologic compensation for diminished need of the tissues for oxygen, and to be akin to the anemia which appears in animals exposed to atmospheres with a tension of oxygen greater than the normal. The other two types of anemia are the hypochromic and the addisonian hyperchromic anemias. These types are considered to be due to alimentary deficiencies of iron and liver, respectively. They differ from the simple deficiency anemias only in being modified in certain respects by the coexistence of myxedema. The simple hyperchromic type of anemia responds slowly to treatment with thyroid alone, in such doses as are found to keep the patient free from symptoms of myxedema or hyperthyroidism. The hyperchromic and addisonian hyperchromic types should be treated with thyroid and with adequate doses, respectively, of a preparation of iron or potent liver. The normal size of the erythron depends on the rate of consumption of oxygen by the tissues, as well as on the tension of oxygen in the atmosphere. This explains the recession of the red marrow up the cavities of the long bones as the animal grows and the rate of metabolism decreases. There is no evidence that thyroxine is one of the factors the presence of which in the bone marrow is necessary for the normal maturation of red cells. It is suggested that the thyroid affects erythropoiesis only indirectly, through its effects on the consumption of oxygen by the tissues and on gastric secretion.

Leukocytosis and Ascorbic Acid.—Cuttle investigated the relation between the leukocyte count in leukemia and the utilization of ascorbic acid and records the effect on ten patients of large doses of ascorbic acid as a therapeutic measure. All patients under investigation were given a carefully prepared diet containing approximately 30 mg. of ascorbic acid daily. In order to establish a base line an additional 25 mg. of ascorbic acid was given daily by mouth for nine days. For the remainder of the period of observation the patients received 1,000 mg. of ascorbic acid a day in divided oral doses of 500 mg. morning and evening. The excretion of ascorbic acid in the urine was estimated by the method of Harris and Ray. Ascorbic acid values for whole blood and plasma were estimated by the method of Farmer and Abt, as modified by Pijoan and Klemperer. The intradermal test for vitamin C deficiency, as reported by Rotter, modified for use in human subjects by Portnoy and Wilkinson, was tried during the course of this investigation. The test was fairly satisfactory in showing the trend of saturation but did not prove sufficiently accurate for the purposes of the study. During the period provided for a base line, three patients suffering from leukosis and three of the six of the control group had a daily urinary excretion of less than 13 mg. of ascorbic acid. It may well be that the other control cases would have reached the minimal standard excretion if the control period had been longer. The daily oral administration of 1,000 mg. in three cases of leukosis did not significantly increase the urinary excretion of ascorbic acid during the first three days. In the control series the urinary excretion varied from 5 to 50 per cent on the first day and had risen to 50 per cent or more on the fourth day. In another patient with leukosis, 5,000 mg. of ascorbic acid was given intravenously and this led to the excretion of only 418 mg. in the urine. A normal person would be expected to excrete at least 2,500 mg. (Wright, Lilienfeld and MacLenathen, 1937). From 500 to 4,000 mg. of ascorbic acid was required to saturate the control patients. In the patients with leukosis the amount required was obviously much greater, and in fact saturation was never achieved during the period of leukocytosis. All patients, including the control series, showed low initial plasma and whole blood ascorbic acid levels (from 0.15 to 0.7 mg. per hundred cubic centimeters). The patients with acute and chronic leukosis and the six controls showed an abnormally low level of vitamin C nutrition. This shows that the maintenance of a minimal standard excretion and the response to a test dose of ascorbic acid alone are of little or no value in detecting the more marked degrees of vitamin C deficiency. Judged by the ascorbic acid requirements to produce saturation and the blood and serum levels of ascorbic acid, the controls behaved in a normal manner, for when given large doses of ascorbic acid (1,000 mg. daily) they became saturated within four days, with a urinary excretion of from 50 to 72 per cent of the daily intake. The response of patients with leukosis was abnormal, for the saturation point was never reached and the amount excreted in the urine was from 8 to 40 per cent. The accompanying leukocytosis affords only a partial explanation of the increased usage of vitamin C in infection, which is seen also in infections not associated with a leukocytosis; increased metabolism is probably an additional factor. There was no significant fall in the leukocyte count when the patients were receiving large doses of ascorbic acid alone. These observations agree with those of Gingold (1937) and Thiel (1938) but do not confirm the therapeutic results claimed by Eufinger and Gaehtgens (1936). An increase in the number of platelets noted in one patient might be credited to ascorbic acid therapy if spontaneous remissions in thrombocytopenic purpura were not so common; however, Thiel (1938) has claimed that ascorbic acid raises the platelet count. The hemorrhagic state associated with acute myeloblastic leukosis was not affected by large doses of ascorbic acid.

South African Medical Journal, Cape Town

12: 743-780 (Oct. 22) 1938

Sulfanilamide in Treatment of Meningococcic Meningitis. J. A. Bell and W. H. Palmer.—p. 745.
Modern Therapeutics: The Wheat and the Chaff. C. H. Coetzee.—p. 748.
National Health Insurance: Some Comments on the Commission's Report. J. C. Gie.—p. 753.
The Separation of the Sphere of Action of Gynecologic and Obstetric Clinics from Other Clinics in the Hospital. F. Daels.—p. 755.
*Influenza as a Factor in Heart Disease. E. E. Wood.—p. 759.

Influenza and Heart Disease.—During the last few years Wood has seen several cases of cardiac trouble which have been obviously caused by influenza. Four cases are recorded in which partial heart block was caused directly by influenza. In three further cases the heart was previously in an unsound condition but an attack of influenza caused partial heart block to be superimposed on the already existing condition. One case is included of regular nodal rhythm, as a direct result of influenza, in which the bundle of His appears to have escaped injury entirely. Attacks of influenza are so numerous and widespread that the majority of attacks can have little or no effect on the heart, but it is quite possible that those frequent cases of postinfluenzal debility that are encountered are due to a mild and passing effect on the heart. The action of influenza on the healthy myocardium is mild, but it may produce a serious increase in a preexisting myocarditis and in some cases influenza may be the means of bringing to light a condition which had previously not been thought of or diagnosed. When symptoms point to an influenzal heart an electrocardiographic record is necessary as partial heart block, a frequent finding, cannot be diagnosed, although it may be suspected, without such a record. Treatment should be begun at once.

Archives des Maladies du Cœur, Paris

31: 885-984 (Sept.) 1938

Consumption of Oxygen in Patients with Heart Disease, Particularly in Those with Mitral Defects. C. Laubry, D. Routier and Y. Bouvrain.—p. 885.
Study of Symptomatology of Q Wave in Disorders of Coronary System. I. Chavez and L. Mendez.—p. 897.
Phonocardiographic Studies on Patients with Aortic Arteriosclerosis. F. Tvaroh.—p. 910.
*Sedimentation of Erythrocytes in Course of Acute Articular Rheumatism (Bouillaud's Disease): Practical Value of Sedimentation Curve. L. Béthoux and R. Genin.—p. 946.
Disturbances of Sinus Rhythm in Patient with Congenital Cardiopathy and Situs Inversus Totalis. J. Porto.—p. 960.
New Formula to Foresee Normal Duration of Ventricular Systole. A. Sebastiani.—p. 973.

Erythrocyte Sedimentation in Acute Rheumatism.—Béthoux and Genin studied the curve of the sedimentation speed of the erythrocytes in all patients with acute articular rheumatism (Bouillaud's disease) who came under their observation in the course of the last four years. They found that the sedimentation speed is increased in the course of acute articular rheumatism. It is observed also in the course of various other acute febrile arthropathies and therefore cannot be utilized for the differential diagnosis of the diverse forms of acute polyarthritis. It does not constitute a diagnostic criterion of acute articular rheumatism except when this disorder, localized only in the heart, provokes evolutive attacks of "cardiac rheumatism"; in such cases the increase of the sedimentation speed of the erythrocytes allows one to suspect the rheumatic nature of the heart disease. The sedimentation curve is much more sensitive than the temperature curve and informs the clinician continually about the evolution of the infectious process which characterizes acute articular rheumatism. The prognostic significance of the sedimentation curve is not limited to the period of the active disease; it extends also to the convalescence, particularly as concerns the possibility of relapse. Frequently apyretic patients without visceral complications, who have no more articular pains and are considered cured, present nevertheless a slightly increased sedimentation index. The question arises whether it is necessary to await the return to normal before the patient is permitted to get up. Brahme, considering that the return to normal is often slow and that the absolute figure of sedimentation at the end of an hour is not an adequate criterion, proposes to take into account the hourly sedimentations determined after an interval of several days. This author suggested the formula $R = \frac{S_1}{S_n - S_1}$; S_1 representing the figure of the first sedimentation and S_n that of the second sedimentation (taken after a week). If R is below 2 there will be no relapses; above 2 they are possible. Of thirty patients who were considered, seven in whom R was above 2.3 had relapses. While recognizing the interest of these researches and the simplicity of this formula, the authors think that the variations in the sedimentation speed during acute articular rheumatism present still too many unknown factors to place absolute confidence in it.

Bruxelles-Médical, Brussels

18: 1613-1642 (Oct. 23) 1938

Recent Therapeutic Application of General Hyperthermia Produced by Physical Means. A. Beaumans.—p. 1613.
*Investigation of Blood Groups in Diagnosis of False Melena of the Newborn. M. Brouha and P. Moureau.—p. 1619.

Blood Group in False Melena of Newborn.—Brouha and Moureau report the clinical history of a mother and her newborn infant. Shortly after birth the child expelled meconium which was black with altered blood. These evacuations continued for four days and after that the stools were normal. At no time did the infant present signs of acute anemia. False melena was assumed. In trying to explain the pathogenesis of the false melena, the authors point out that in this case the delivery began with rupture of the amnion. They assume that at this time a quantity of blood entered the amniotic fluid and that during the twenty hours of labor the fetus swallowed amniotic fluid mixed with maternal blood. It is believed that this blood caused the melena in the nursling. In order to exclude definitely the fetal origin of the blood, tests were made on the blood groups of mother and child. These tests revealed that the erythrocytes which were found in the bag of waters of this fetus were of maternal origin. Thus the diagnosis of false melena was corroborated.

Journal d'Urologie Médicale et Chirurgicale, Paris

46: 201-304 (Sept.) 1938

Value of Chromocystoscopy in Diagnosis of Localization of Renal Tuberculosis. M. Secrétan.—p. 201.
*Some Considerations on Pathogenesis of Priapism. E. Chauvin.—p. 224.

Pathogenesis of Priapism.—Chauvin reports the clinical histories of two young men who consulted him on account of priapism. In the first patient, who had been married only nine days previously, there were no factors that would explain the disorder. The examination revealed that the priapism was not due to leukemia, to nervous factors or to neoplasia. After the erection had persisted for several days, an incision of the penis was decided on. When this was done the albuginea penis proved hard and of woody consistency. Its incision was followed by the discharge of black, sticky and thick but homogeneous and fluid blood. Careful inspection revealed nothing solid and no appreciable clot. A large quantity of blood was discharged and it seemed that the two cavernous bodies were emptied simultaneously through the incision on the left side. However, an incision was made also on the right side and care was taken that the evacuation was as complete as possible. As the blood was discharged the penis became soft again. The postoperative course was uneventful. An examination six weeks after the intervention revealed an entirely normal penis, but erection had so far remained impossible. The second patient had sustained a slight perineal trauma in the course of bicycling and, in the absence of other causes that might explain the continuous erection, it appears that this trauma might have had an etiologic role. In this case the author again resorted to the incision of the penis, but this time the blood that was discharged from the cavernous bodies was normal in color and in fluidity; there were no traces of clots and no signs of pitchy thickening. The discharge of the blood did not result in the cessation of the erection; in fact, the erection persisted for a considerable time after the intervention. Inspection two months after the operation revealed that the penis was normal in volume and consistency. In his extended discussion of the pathogenesis of priapism, the author takes up four points: (1) nervous factors, (2) disturbance in the venous backflow, (3) hematoma of the penis and (4) thrombosis of the corpora cavernosa. He reaches the conclusion that priapism is due neither to a hematoma of the corpus cavernosum or to an obliteration of the veins of the penis but rather to an obstruction of the venous capillaries by thickened and viscous blood. Abnormally prolonged erections, either pathologic (myelopathy) or physiologic (genital excesses) are the cause of this condensation of the blood, which is probably favored by certain prior conditions such as leukemia or hyperviscosity of the blood. This manner of regarding the condition has the great advantage of bringing all types of priapism within the same framework and of suppressing the purely etiologic distinction which the symptoms and especially the evolution, identical in all cases, do not justify.

Presse Médicale, Paris

46: 1593-1608 (Oct. 29) 1938

Fundamental Lesions of Experimental and Human Mineral Pneumoconiosis. A. Policard.—p. 1593.
*Combined Galactose and Water Test as New Functional Test of Hepatic Insufficiency. F. Pollak.—p. 1596.

Galactose and Water Test of Hepatic Insufficiency.—Pollak cites his experiences with a combined galactose and water tolerance test. The procedure of the combined water and galactose test permits one to determine simultaneously the elimination of the liquid and the absolute and proportional elimination of galactose as well as the length of time necessary for each of these phenomena. Numerous investigations of this type have indicated that the duration of the elimination is of essential importance for the interpretation of the galactose test. The author describes and evaluates experiences with the combination galactose and water test in eight cases. Sum-

marizing his observations, he says that in the combined galactose-water test the elimination of galactose by the urine requires in healthy subjects, at the most, ninety minutes. If the elimination exceeds this time limit, this is an indication of a lesion of the hepatic parenchyma. The duration of the elimination represents a reliable criterion, independent of extrahepatic factors. The reliability of the criterion can be proved by repeated control tests on the same person; it can be observed that there are considerable oscillations of the percentage and especially of the absolute elimination of galactose, close to the constancy of the duration of the elimination. The author concludes that it is possible to admit a simplification of the galactose test, in which the presence of sugar in a series of specimens of urine suffices to reveal a hepatic lesion, without a diminution in the reliability and sensitivity of the functional test.

Archiv für Verdauungs-Krankheiten, Basel

63: 177-248 (Sept.) 1938

*Action of Vitamin A in Gastric Disorders. H. J. Kluth.—p. 177.
Comparative Examination of Hydrogen Ion Concentration (pu Value) of Saliva and of Gastric Juice in Patients with Gastric Disorders. F. Stengel.—p. 191.
Catamnestic Survey of Causes of Gastritis. K. Ilg.—p. 196.
Visualization of Gastric Mucosa with Especial Consideration of Roentgenstereogram. Gertrud Schulze.—p. 220.

Vitamin A in Gastric Disorders.—Kluth says that he studied the action of vitamin A on ninety-six patients with gastric disorders such as various types of gastritis and ventricular and duodenal ulcers. At first the vitamin A was given three times daily by mouth in the form of dragées. Later the oral medication was combined with intramuscular injections (three times each week). However, the injection treatments were later discontinued because infiltrations were repeatedly observed at the site of injection. In reviewing the results that were obtained with the vitamin A therapy, the author says that favorable results could be obtained only in anacid and subacid gastritis. Cases of hyperacid gastritis and of duodenal and ventricular ulcer remained uninfluenced by vitamin A. The author shows that in this respect his observations differ from other reports in the literature. In cases of achylia, free acid appeared only following the injection of vitamin A. In some of the patients increases in weight were observed. Especially noteworthy was the favorable effect on the intestinal activity in constipation as well as in diarrhea. Discussing the mode of action of vitamin A, the author says that it is most probable that in patients with gastric disorders a vitamin A deficiency exists because of deficient resorption in the intestinal tract. This assumption is supported by investigations on the occurrence of night blindness in anacid gastritis and by the fact that these cases of night blindness can be influenced by the injection of vitamin A.

Archivio Italiano di Chirurgia, Bologna

49: 117-200 (July) 1938. Partial Index

External Functions of Pancreas in Relation to Unilateral and Bilateral Adrenalectomy. G. Cosentino.—p. 117.
*Metabolism of Hemoglobin After Surgical Interventions, Especially Gastric Resection. C. Scartozzi and M. Ferrando.—p. 133.

Metabolism of Hemoglobin After Gastric Resection.—Scartozzi and Ferrando observed the metabolism of hemoglobin after surgical operations, especially gastric resection. The latter operation was performed on fourteen of fifteen patients suffering from gastroduodenal or duodenal ulcers. The observations were made before the operation, fifteen days later and again at a given date which varied from four to six months after the operation. Six normal persons who had been operated on for appendicitis or hernia served as controls. The authors found that patients suffering from gastroduodenal or duodenal ulcers have diminished metabolism of hemoglobin and diminished formation of bile salts. The metabolism of hemoglobin increases immediately after a surgical operation. The increase, however, is transient. The values of hemoglobin and bile salts formation gradually decrease during the first four or six months after the operation. By this time the substances become almost normal and stop decreasing without returning to the low values which existed before the operation. The authors conclude that the fear for the development of hemolysis and grave forms of anemia after ample gastric resection is both unjustified and exaggerated. The operation is frequently followed by transient hemolysis and by benign, curable and uncomplicated forms of anemia.

Clinica Medica Italiana, Milan

69: 575-646 (Sept.) 1938

*Nitrogen Metabolism in Primary Progressive Muscular Dystrophy. A. Guarnaschelli-Raggio.—p. 577.
Considerations on Syndromes of Thrombopenic Hemorrhages. B. Nolli.—p. 603.
Tumors of Reticulo-Endothelial System: Cases. G. Rocchini.—p. 625.

Nitrogen Metabolism in Muscular Dystrophy.—Guarnaschelli-Raggio observed the curve of elimination of nitrogen in the urine of eleven patients, children and adults, who had primary progressive muscular dystrophy. The determinations were made before and after administration of a pancreatic extract. The patients were fed a diet rich in proteins from one week before the first determination up to the end of the observations. The author found that the daily elimination of nitrogen through the urine is diminished in all cases (an average of 0.04 or 0.05 Gm. of nitrogen in the total amount of urine eliminated in twenty-four hours). The amount of eliminated nitrogen frequently changes, regardless of the fact that the daily intake of proteins in the diet of the patients is constant. The patients suffer from disturbances of the pancreatic digestion and the intestinal absorption of proteins. The metabolic disorders are the same in the various clinical forms of the disease (atrophic, pseudohypertrophic, juvenile, facial, scapular and humeral and mixed forms). The diminished elimination of nitrogen is more intense in grave forms (those of an early rapid evolution) than in benign forms of the disease. Administration of a daily dose of pancreatic extracts for one or two consecutive months, in association with a diet rich in proteins, increases the amount of nitrogen eliminated in the urine. Coincidentally the general condition of the patients improves and the pancreatic and intestinal disturbances subside (as shown by the basal metabolism, which becomes normal). The author concludes that the disease is caused by a deficient supply of nitrogen in the body which originates in alterations of the intestinal absorption of proteins from functional disorders of the pancreas. Continuous administration of a treatment with pancreatic extracts up to normalization of the elimination of nitrogen in the urine induces permanent satisfactory results except when irreparable damage has taken place. The best results are obtained from early treatment. The author used a preparation of pancreatic extract (Richter) in daily doses of 60 or 100 drops for one or two consecutive months. Discontinuation of the treatment was decided by normalization of the nitrogen elimination, which took place in one or two months except in one case in which treatment failed.

Brasil-Medico, Rio de Janeiro

52: 961-982 (Oct. 22) 1938. Partial Index

*Use of Standard Blood Plasma in Classifying Blood Groups. H. Maciel.—p. 961.
Proteins. M. E. de Souza Aranha.—p. 971.

Standard Blood Plasma in Classifying Blood Groups.—Maciel states that standard blood serums which are prepared for use in classifying donors for blood transfusion deteriorate in about one month when they are at room temperature and in about three months when they are kept in the icebox. Deterioration is the cause of shock from transfusion and of false results in relation to mutability of blood groups. The latter never change. At first the author used freshly prepared blood serums which were taken from the icebox only for immediate use. No case of shock from transfusion was observed. Later on he found that the agglutinating power of the blood plasma is more intense and lasting than that of the blood serum. Since then he has used freshly prepared blood plasma in the conditions mentioned. The stock is renewed every three months, the old stock being disposed of. The author points out the advisability of making determinations of the agglutinating power of the blood plasma (or blood serum) which

is going to be used as a standard in classifying donors, separately from those which are done in the blood, because of the fact that frequently in the blood of persons of the B group the globules but not the plasma and the serum are rich in agglutinins. If good standard blood plasma (or blood serum) of the A and B groups is available, verification in blood plasma (or blood serum) of the O group is unnecessary.

Revista de la Asoc. Med. Argentina, Buenos Aires

52: 951-1014 (Sept. 30) 1938. Partial Index

Hemorrhagic Ulcerated Syphiloma of Stomach. J. A. Caeiro and A. E. Bianchi.—p. 951.
Pyelitis of Pregnant Toxicosic Form. E. Thwaites Lastra, A. M. Brea and R. Bizzozero.—p. 955.
*Treatment of Acute Nephritis in Children. F. de Filippi.—p. 957.
Action of Calcium Chloride on Poisoning by Cocaine and Succedaneous Preparations. R. E. Carratalá and A. Buzzo.—p. 966.
Suggestions for Treatment of Malignant Granuloma. F. R. D'Ovidio.—p. 974.

Acute Nephritis in Children.—Volhard's treatment consists in suppression of food and of the water intake and administration of small quantities of orange juice for from five to six days. De Filippi reports satisfactory results from the treatment in a large number of children who were suffering from acute diffuse glomerulitis. Seven cases are reported. A cathartic of castor oil or magnesium sulfate is given to the patients immediately before starting the treatment. Orange juice is administered alone for the first five or six days and then in association with food and water for one or two more weeks. The daily allowance increases from 75 or 100 cc. of orange juice during the first two days to 600 cc. during the last three days and also during the following two weeks in which the diet is reestablished. The arterial pressure, weight and diuresis are determined before and in the course of the treatment. As a rule the arterial pressure and diuresis become normal and edema diminishes within two or three days. The loss of weight depends on the lowering of edema. Hematuria diminishes early in the course of the treatment, except when due to focal infection, which must have the proper attention. The diet is slight during the first week in which it is reestablished and slowly increases so as to be normal by the end of the second week. The treatment is well tolerated. Acute cardiac and renal complications or the development of chronic renal disease do not follow. Permanent recovery takes place within three weeks or a month in all cases of acute and subacute forms in which there are no complications.

Deutsches Archiv für Klinische Medizin, Berlin

182: 477-636 (Oct. 6) 1938. Partial Index

Kymographic and Electrocardiographic Aspects of Sport Heart. H. Reindell.—p. 506.
Vitamin C and Diabetes. H. Bartelheimer.—p. 546.
Action of Baths and Febrile Conditions on Elimination of Porphyrin. U. Graff.—p. 556.
*Duodenitis. H. Schnetz.—p. 570.
Are There Transitions Between Recklinghausen's and Paget's Disease? A. von Domarus.—p. 611.
Formation of Fat from Carbohydrates in Fat Organs. K. Felix and W. Eger.—p. 623.

Duodenitis.—Schnetz thinks that duodenitis should be recognized as an independent disease entity. To be sure, its isolated occurrence is rare; it concurs with secondary functional pancreatic disorders, with functional disturbances of the stomach and most frequently combined with other organic diseases of the epigastric region. The author shows further that in cases of gastric ulcer, in disorders of the biliary passages and in pancreatopathies the syndrome of duodenitis should receive diagnostic and therapeutic attention. On the basis of reports in the literature and of his own observations, he shows that the diagnosis of the syndrome of duodenitis can be based on the demonstration of products of inflammation in the duodenal contents, on the relief visualization of the duodenal mucosa and on the detection of pancreatic symptoms with clinically demonstrable disturbances of the digestion and of the internal secretion. Pancreatic symptoms are detected so frequently in the course of duodenitis that they have an important part in the diagnosis. The existence of a disturbance in the external secretion of the pancreas in duodenitis is proved not only by the complex of pancreatic symptoms but by the demonstration of an increase in the duodenal juice, of an inhibition in the amylase and of a disordered secretion of trypsin in the functional test of the pancreas according to Berger and Hartmann and by the examination of the sugar metabolism according to Schnetz. In the clinical aspects of duodenitis the pancreatic disturbances have the main part; they are regarded chiefly as functional. An attempt was made to determine the correlations between duodenum and pancreas and to differentiate between duodenitis as the cause of functional disturbances of the pancreas and of duodenitis as the cause or result of organic diseases of the pancreas. Discussing the treatment of duodenitis, the author says that aside from the treatment of possible causes (sympathetic dystonia, thyrosis, intestinal infections, disorders of the biliary tract and gastrointestinal ulcers) the therapy should aim at reducing the load on the digestive system by means of dietetic treatment. Moreover, he obtained favorable results by a combination therapy with pancreatic ferments and vitamins C and B_1.

Deutsche Zeitschrift für Nervenheilkunde, Berlin

147: 217-292 (Oct. 11) 1938

Histopathology and Pathogenesis of Fatal Insulin Shock. G. Döring.—p. 217.
Heredodegeneration Difficult to Classify. J. Dretler.—p. 228.
*Myeloma and Nervous System. I. Scheinker.—p. 247.
Classification of Polyradiculitides. A. Juba and F. Kovács.—p. 274.

Myeloma and Nervous System.—Following a general discussion of various types of myeloma, Scheinker reports the clinical history of a man aged 38 with a disorder involving the skin and the nervous system. The author thinks that the disease process in the peripheral nerves represents a new form of interstitial polyneuritis. Summarizing the observations described in this paper, he says that the patient had a "solitary" plasmacellular myeloma that was localized in the sternum. The case disclosed a connection between a disease of the bone marrow that was accompanied by metabolic disturbances and a peculiar cutaneous and nervous disorder. The cutaneous disorder became manifest in a coarse-fibered transformation or an increase in the connective tissue in the region of the cutis and the subcutis. The disease of the nervous system presented the clinical aspects of an ascending polyneuritis of the type of Landry's paralysis. The anatomic basis of this polyneuritis was found to be a hitherto unknown disease of the peripheral nervous system. It was characterized by a severe proliferation of the perineural or epineural connective tissue and by a consecutive parenchymal disease of the nerve fiber. On the basis of the histologic characteristics the author suggests that the term "perineuritis interstitialis scleroticans" be applied to this form of polyneuritis. He assumes a causal connection between the disease of the bone marrow and the peculiar cutaneous and nervous disorder and suggests that toxic metabolic waste products which are characteristic for myeloma may cause such cutaneous and nervous changes. He believes that the pains which dominate the clinical picture of myeloma are caused in the majority of cases by toxic impairment of the peripheral nerves.

Klinische Wochenschrift, Berlin

17: 1497-1528 (Oct. 22) 1938. Partial Index

Arteriovenous Anastomoses in Animals and Man. L. Aschoff.—p. 1497.
Vitamin A Deficiency and Thrombocytic Reaction. E. Lorenz.—p. 1498.
Leukopenia Following Intravenous Administration of Colloidal Carbohydrates. H. Staub, K. Mezey and G. Golandas.—p. 1501.
Depot Insulin in Treatment of Diabetes in Children. F. Linneweh and Marga Eitel.—p. 1507.
Significance of Skin in Defense Against Infectious Diseases. H. Knauer.—p. 1510.
*Significance of Allergy for Endocrine Arthritis. A. Sylla.—p. 1511.

Allergy in Endocrine Arthritis.—Sylla says that in the majority of cases of so-called endocrine arthritis neither the pathomorphologic changes nor the localization of the process is of decisive importance. The localization seems to depend on a hereditary or acquired predisposition. In the majority of cases the disease is an inflammatory process that originates in local foci. The endocrine factor involves a reduction in the reaction capacity of the diseased tissues as well as of the entire organism. Insufficient production and secretion of hormones reduces the reaction capacity. This implies that in case of insufficient production of certain incretions the allergy is

influenced in the negative direction, so that now, in case of inadequate reaction, the inflammation takes a chronic course, below the threshold. Administration of the lacking glandular principles influences the metabolic and allergic reactivities in the direction of a greater sensitivity and a more lively response to stimulation. Consequently the treatment must aim to effect sensitization by the administration of the lacking substances and then, in combination with the usual physical and hydrotherapeutic methods, to effect improvement or even cure of the articular disorder. To what extent glandular hyperfunctions influence articular processes has not been clarified as yet. It is possible however that, for instance in severe hyperthyroidism, hyperergic reactions might play a part. Nevertheless the articular disturbances in which hyperfunctioning of the endocrine glands plays a part are doubtless much less frequent than those endocrine arthritides which, although not caused, are greatly influenced by glandular hypofunction.

Zeitschrift für Kinderheilkunde, Berlin

66: 181-284 (Oct. 15) 1938. Partial Index

Agglutinin Formation in Whooping Cough and Immunobiologic Study on Rachitic and Nonrachitic Children. F. Hansen.—p. 181.
*Experiments with Wheat Germ Oil (Vitamin E) in Care of Premature Births. F. Widenbauer.—p. 216.
Clinical Aspects of Congenital Stridor. E. Traub.—p. 222.
Erroneous Diagnoses in Vesicular Emphysema in Lung of Child. W. Matheja.—p. 236.
Prophylaxis of Scarlet Fever in Institutes. W. Brenner.—p. 243.
Problem of Still's Disease. M. Schwaiger.—p. 255.

Vitamin E in Premature Infants.—Widenbauer raised the question whether premature infants might perhaps suffer from a deficiency in vitamin E resulting from a vitamin E deficiency in the mother. This possibility seems justified in view of the reported success obtained with vitamin E in the prophylaxis and therapy of habitual abortion and of the tendency to premature births. If women who are subject to abortion and premature births have a deficiency of vitamin E, it may be reasoned that the infant too might have such a deficiency. It has been proved by Emerson and Evans that vitamin E influences growth and so Widenbauer decided to investigate the effects of small quantities of wheat germ oil (vitamin E) on the growth of premature infants. A rapid increase in weight induced by vitamin E after prolonged arrest of the growth was regarded as the criterion of the action of vitamin E. Since changes in feeding and care and the existence of infections would obscure the results, such cases were excluded in the estimation of the action of wheat germ oil. Consequently only a comparatively small number of cases could be selected in two years. Seventeen premature infants were treated with wheat germ oil and two premature infants served as controls and were given olive oil. In eleven of the seventeen premature infants the vitamin E produced a rapid increase in weight after a previous arrest in growth, and thus it seems possible that the wheat germ oil does promote the growth of premature infants. To be sure, the comparatively small material permits no definite conclusions, but the results obtained so far justify further investigations.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

82: 4777-4952 (Oct. 1) 1938. Partial Index

*Value of Quinine as Prophylactic Against Influenza. N. H. Arkema.—p. 4789.
Circular Strictures of Vagina. R. F. Schuurmans.—p. 4799.
Metal Tourniquet. V. Winters.—p. 4802.
In Memory of Boerhaave. D. Schoute.—p. 4807.
Boerhaave's Influence on American Medicine. H. E. Sigerist.—p. 4822.
Hermann Boerhaave as Clinician. I. Fischer.—p. 4835.

Quinine as Prophylactic Against Influenza.—Arkema studied the prophylactic value of quinine against influenza in four infantry regiments. Two of these regiments were subjected to prophylactic treatment with quinine and the two others were not. Summarizing his observations, he says that in comparing the two regiments (5 and 16) in which quinine prophylaxis was employed with those (18 and 21) in which this was not done, it can be seen that the first two regiments had a much smaller number of influenza patients and considerably fewer complications than the two others. However, this difference is due chiefly to the large number of influenza cases in regiment 21. Regiment 18, in which quinine prophylaxis was likewise omitted, did not have a larger number of influenza cases than the two regiments (5 and 16) which had been subjected to quinine prophylaxis. Moreover, records revealed that regiment 21 had had a comparatively large number of influenza cases in three previous years. The author concludes from this that in the population from which the members of the twenty-first regiment are drawn there must be factors which are responsible for the high incidence of influenza. Thus the observations made so far by the author do not furnish a convincing proof for the value of quinine in the prophylaxis of influenza. In view of the peculiar role assumed by regiment 21 in these investigations, the author intends to use quinine prophylaxis next year in this regiment and thereby determine whether it will reduce the incidence of influenza and thus furnish a better insight into its prophylactic value.

Hospitalstidende, Copenhagen

81: 1049-1080 (Nov. 1) 1938

Investigations on Sulfate Clearance. T. Bjering and E. Øllgaard.—p. 1049.
*Investigations on Action of Nicotinic Acid in Experimental Gastroprival Pellagra: Preliminary Report. S. Petri, F. Nørgaard and E. Bandler. p. 1068.

Nicotinic Acid in Experimental Pellagra.—Petri and his associates found that in experimental gastroprival pellagra in swine, contrary to the result in pellagrous conditions produced in swine experimentally by feeding, nicotinic acid is without effect. In one case in which the pylorus was resected, the subpellagrous symptoms disappeared following the administration of nicotinic acid. The authors say that the effectivity of the agent seems to depend on the presence of a gastric function (an "antipellagra factor").

Nordisk Medicinsk Tidskrift, Stockholm

16: 1647-1686 (Oct. 22) 1938

Tuberculosis in Eskimos in Angmagssalik, East Greenland. A. Høygaard.—p. 1647.
*Mercuric Oxycyanide Intoxication. O. Berner and E. Jensen.—p. 1656.
Points of View Regarding Modern Hospital Ventilation and Heating. C. Naeslund.—p. 1660.

Mercuric Oxycyanide Intoxication.—Berner and Jensen report the case of a woman who drank a 3 per cent solution of mercuric oxycyanide and died three hours later. Necropsy and chemical analysis of the intestinal contents disclosed death from prussic acid poisoning. Most cases of mercuric oxycyanide intoxication, they say, behave like ordinary mercury poisoning; only in exceptional cases is this type of intoxication confused with prussic acid poisoning. Story and Lorenz have recently called attention to the part played by the hydrochloric acid in the gastric juice in the development of prussic acid poisoning. Twenty cc. of a 3 per cent solution of mercuric oxycyanide will set free 106 mg. of prussic acid. The result of the poisoning depends on the amount of the mercuric oxycyanide solution taken and the degree of gastric acidity, together with the rapidity with which the resorbed prussic acid is rendered harmless. Even a two hundredth normal solution of hydrochloric acid will instantly set free prussic acid, and the presence of relatively abundant gastric juice and a suitable amount of mercuric oxycyanide in proportion to the amount of gastric juice affords the best condition for the occurrence of prussic acid poisoning.

Ugeskrift for Læger, Copenhagen

100: 1127-1146 (Oct. 6) 1938

Tetany and Parathyroid Insufficiency. H. Nielsen.—p. 1127.
*Investigations on Effect of Administration of Nicotinic Acid in Two Patients with Idiopathic Steatorrhea (Sprue). J. Bing and B. Broager.—p. 1131.
Treatment of Pellagra with Nicotinic Acid: Review and Report of Case. O. Bereth and G. K. Stürup.—p. 1137.
Pellagra Treated with Nicotinic Acid: Case. J. Rava.—p. 1140.

Nicotinic Acid in Idiopathic Steatorrhea (Sprue).—Bing and Broager found that nicotinic acid had a marked effect on the water content quantity and the consistency of the feces in two cases. There was no increase in the resorption of dry substance, lipoid, nitrogen, calcium or ascorbic acid, and none of the other symptoms of sprue were affected in the same distinct manner as the diarrhea. On discontinuing the medicament diarrhea again set in.

THE STUDENT SECTION

of the

Journal of the American Medical Association

Devoted to the Educational Interests and Welfare of Medical Students, Interns and Residents in Hospitals

SATURDAY, DECEMBER 24, 1938

Practical Pointers and Pitfalls in Medical Practice

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DETROIT

The pitfalls in the practice of medicine depend to a large extent on what the future holds in the method and the manner of this practice. If state medicine is to be the future, I should discuss with you (1) how to make blanks in triplicate or quadruplicate, (2) how to build political fences, (3) how to kotow to political bureaucracies, (4) how to appease the sadistic boss who likes to see the fellow beneath him wriggle, (5) how one doctor may treat 100 patients a day, (6) how a look and a bottle constitute a consultation and how to steel one's conscience to this, (7) how to ignore the malingerer in order to have some time to comfort the really sick, (8) how to build a nonprofit insurance company and (9) how to become a physician to end physicians.

Some alleged weaknesses of our present system may be overcome. But will not many serious evils arise to confound further and deter us in our efforts to help the sick and suffering? There is no group of people in the world that appreciates more than we do the following statement: "There is but one permanent thing in the world, and that is change." On the other hand, there is no group who understands more clearly than we do that this change must be by slow evolution and that this slow evolution must be directed by the pilot who flies the plane of medicine in actual combat with disease.

I believe that the pioneer spirit of America survives in the practicing physician of today more nearly than in any other profession or calling. The pioneer was accustomed to hardships and so must be the physician. "He calls no hour of day or night his own, through heat and cold he goes his rounds alone." And although as individualistic as he needs be, I believe that as a group he will fight to the last ditch those vicious radicals who are trying to stop him. I said "practicing" physicians advisedly. Men in institutional work are contributing their share to the research field of medicine. Most of them, by lack of experience, are unfamiliar except through hearsay with the demands of actual practice. If you have chosen the cloistered field of scientific research, what I have to say may bore you for the present, but even for you it will have a purpose; namely, to make you more cognizant and tolerant of your struggling professional brother—the doctor in the field. What has he given to America? What is our heritage? By what means may we emulate him? For we do want to follow in those hallowed footsteps of the practitioner of a free America, and therefore my emphasis will be placed on the exposition of those qualities that I feel make the American doctor without a peer.

This is a day of specialists—and we need them—but we also need the "family doctor" not only because of what he gives to the community but also because from him we may learn those human attributes which constitute the art and practice of medicine. May I name some of these factors which identify the good doctor in all fields and that go to make a good practitioner? Aphorisms, perhaps, but at least pegs on which to hang your thoughts for rather permanent mental reference. These may be mentioned as follows: availability, ability, personal appearance, punctuality, sportsmanship, postgraduate study and personality. From an inculcation of these attributes should develop a proper concept of where you should locate to practice, of how your prescriptions are written or how well your office looks, or perhaps the choice of your secretary or it may be your club memberships—in fact, many other problems of decided interest to the young man beginning in practice. Many of these I will not have time to discuss.

AVAILABILITY ESSENTIAL

One of the first and most essential demands of a good practitioner is availability. Of what use is outstanding ability if that person of ability cannot be found? It is therefore necessary that the office be the center of attraction, particularly for the first ten years in actual practice. We all appreciate the economic, social, educational, industrial and religious effects and demands on the lives of the doctors, and to these he must give some attention. Nevertheless he must concentrate on the subject for which he has spent so many years in training.

Address to student and intern meeting at the annual session of the Michigan State Medical Society, Detroit, Sept. 19, 1938.

It requires much self sacrifice I confess, but if you are to build a niche for yourself you must deny yourself. One aphorism that may be used here is "Think only of yourself if you want others to forget you."

The second factor I wish to discuss is ability. It must be assumed that, with the educational standards as high as at the present, you must have had ability to have gotten this far along the road to success. You are now ready to put that training to the test, and although books are a necessity and a maximum of theory must be accumulated, Osler's warning may well be applied; that is, "To study the phenomenon of disease without books is to sail an uncharted sea; while to study books without patients is not to go to sea at all."

The third attribute in importance I wish to discuss is personal appearance, and of course in the practice of medicine this means a professional appearance not alone in apparel but in manner. It is necessary that you have the appearance of self control and self reliance, to inspire confidence. This does not, however, permit you to dress so that the man in the street might be inclined to step up and ask you "Where are the races?" This garb makes a distinctly bad impression. It is always well to keep in mind the old adage "Blacken a man's shoes if you want to keep him out of the mud. The man with dirty shoes doesn't care where he walks." It is necessary that you keep polish on your personal appearance—on your professional appearance—as well as on your mental and moral habits.

Punctuality is another attribute that is too often forgotten. The nature of your work is inclined to give you a good excuse for being late. Don't abuse this privilege and make of it an alibi. If it is your job to be at a certain place at eleven in the morning, be there or telephone. Don't forget that every one is watching you, not just a few of your friends. And in this regard, in considering punctuality, "Throw away your wrist watch and buy an alarm clock."

Sportsmanship is something to be remembered. Medicine is a hard mistress, and there are many temptations which come to you through your practice. Always remember "If you throw mud, you lose ground." Therefore be slow to criticize, for much depends on a difference of opinion. Become connected with your medical societies, meet the men in your profession and realize that you owe some of your time to the upbuilding of the profession to which you belong. Let me repeat to you that we are individualists; nevertheless a proper contact with your medical organizations, with societies outside medical interest, will bring to you a greater concept of the needs and wishes of the community in which you live.

Next, aim at a professional perfection by writing papers, following postgraduate pursuits, realizing always that there is plenty of room in the world for successful men. "Ideals are like stars; you will not succeed in touching them with your hands, but like the sea-faring man on the desert of waters, you choose them as your guide and follow them, reaching your destiny."

And, last of all, don't forget personality. A cheerful face soothes many a fevered brow, and a merry heart doeth good like medicine.

Comments and Reviews

TRENDS IN MEDICAL INVESTIGATION

Abridgment of a paper by Dr. Roger I. Lee of Boston, read before the American College of Physicians, New York, April 4, 1938, and published in the Annals of Internal Medicine, November 1938.

Truly the advances in medicine have been prodigious in the last few generations. The changing situation has developed in internal medicine new attitudes and new standards. It is not too much to say that a new specialty has appeared, that of the medical investigator. In these bewildering changes there seems at times to be a restless activity of feverish intensity. Granted that the internist should be a medical investigator, should his work be evaluated on actual publications, on quantity of publications, and what are some of the necessary criteria for the scrutiny of the quality? Or has there not developed a technic in medical investigation that is stereotyped, narrow and inadequate? It should be possible to pause in order to strengthen some of the points of weakness of the present system. Careful objective observation must be the foundation of any investigation. But unless the scope of these observations is carefully planned and the experiments carefully designed, the labor may be wasted. Indeed the critical observation or experiment is relatively rare. We have to admit that in the large majority of instances the design or plan or observation or experiment is so bad or inadequate that the entire procedure is valueless.

The myth of the athletic heart is an excellent example of a product of faulty observation, of the failure to understand and use ordinary statistical principles and of faulty reasoning, especially in the conclusions based on the physiologic principle that muscular exercise increases the size of the heart. Somehow erroneous obser-

vations appeared in print aiming to show the increase of the heart under athletic training, especially in colleges. A few cases of cardiac disease or death were cited to furnish the statistical evidence. Then extraordinary conclusions of all sorts were made. However, instruments of precision showed the original observations to be erroneous. But the myth was kept alive by a credence in the statistical evidence although this evidence satisfied no statistical requirement. It is difficult to secure adequate data to meet any reasonable statistical requirements for the proof that athletic training in youth predisposes to cardiac death from twenty to forty years later. A little thought indicates many other factors that might affect the heart in addition to college athletics. Of course, any conclusions based on such faulty observations and statistics are worthless. Unfortunately the myth still lives, though in a feeble state.

IMPORTANCE OF OBSERVATION

Much has always been made of the importance in medicine of observation. Every medical student is impressed by the paramount necessity of the trained use of touch, sight, hearing, smell and occasionally of taste. There are many mechanical devices to assist those senses. But in the rush of medical progress other faculties are needed to supplement these observational senses. Hippocrates and his group were masters in the art and science of observation. But the conclusions of Hippocrates, while based on accurate and repeated observations, were arrived at by deductions that were as carefully controlled as the observations themselves. Likewise, Jenner observed cowpox in milkmaids. By the simple statistical collection of these data, Jenner noted in a sort of statistical fashion that most milkmaids contracted cowpox. His statistical data showed that smallpox was rare among milkmaids; or, in other words, there was a high correlation between the incidence of cowpox and the absence of smallpox. Jenner next called on another trait and deduced that the cowpox protected against smallpox. If his observations were correct and if there were no unknown disturbing factors, this deduction was logical and it was so subsequently proved by the accumulation of abundant statistical data and the establishment of a high correlation of absence of smallpox and the presence of cowpox.

In some ways, medicine has not changed in the development of the use of statistics or the use of deduction since the days of Hippocrates or of Jenner. We have done decidedly better with regard to statistics than with regard to deductive reasoning. It took a long time to realize that mortality figures in pneumonia had to be broken up into age groups and also into types of the infecting pneumococcus; then there may be a yearly or seasonal variation. Nevertheless many assert that, irrespective of statistics, certain procedures in pneumonia do good. At one time, based on electrocardiographic evidence, the use of digitalis was advocated in every case of pneumonia. Without statistical proof and without sound reasoning, the use of digitalis became practically routine in the treatment of pneumonia. Subsequently clinical studies under adequate statistical control indicated that the routine employment of digitalis was actually detrimental in the average case.

It is the fashion to deride statistics, but the observational data which go into the statistical treatment, like the beef that goes into the can, are not changed by the process. The method is less faulty than the data. It is a long road to prove statistically the benefit of a therapeutic procedure in pneumonia. Very likely there are other unrecognized variables besides age groups and types of pneumococci. Animal experiments and test tube research are illuminating, but the final answer to the query of the beneficial effect of a procedure in pneumonia in human beings must be statistical.

If data do not meet simple statistical requirements, it is futile to try to draw conclusions from them. While many of our medical errors are derived from failure to use statistics correctly, nevertheless the greater bulk of medical errors are derived from faulty reasoning. We make many unjustifiable assumptions. Improper conclusions or deductions may be readily made from data which are accurate enough. For example, it was argued for many years that, since malaria existed in marshy places, it was the dampness which caused the malaria.

FAULTY REASONING

There is one form of faulty reasoning or faulty logic which is common in medical literature. For example, it is known that all cases of pernicious anemia have an absence of free hydrochloric acid in a gastric analysis. It does not follow, however, that pernicious anemia exists in all cases in which hydrochloric acid is absent. Again, most of the cases of pernicious anemia respond to liver therapy. It may be argued that liver therapy is a therapeutic test for pernicious anemia, but one must not argue that no cases are to be diagnosed as pernicious anemia if they do not respond to liver therapy and that therefore liver therapy is always successful in pernicious anemia.

From the very nature of things, clinical observations are complicated. There are always unknown variables. Nevertheless, clinical material has always furnished excellent illustrations of the best and most scientific types of medical investigation. A great many medical beliefs, medical procedures and the like are based on

what we call the results of logical reasoning. As an example, is it logical to assume that a person infected by typhoid bacilli in the water will be less sick than a person infected with typhoid bacilli in milk? Presumably the milk will carry more bacilli than the water. Let us grant that the virulence of the micro-organisms is the same and that the series of cases is large enough to iron out the variability of possible special groups of immunes or partial immunes. The answer must be "No" of course.

Perhaps the commonest illustration concerns the prevention of the common cold by vaccine. We do not know the causative agent of the common cold and therefore the bacterial vaccine used to prevent colds does not contain it. Is it therefore necessarily illogical to give these bacterial vaccines as a preventive of colds? The answer must be that it is not necessarily illogical although there is no evidence that it is logical, because immunity to the cold may be produced by nonspecific therapy.

Among all persons wishful thinking, or the rationalization of what we desire, is common. We know what we want and therefore build up arguments in its favor.

One could give many illustrations of errors in reasoning mostly based on the fact that in the reasoning only one instead of several possibilities is considered. The type of thing to which I refer is the reasoning that in pneumonia there is usually a high fever, therefore any high fever may mean pneumonia. Of course, such an illustration seems absurd. On the other hand physicians do not hesitate to argue that, because appendicitis is often accompanied by a leukocytosis, therefore if there is any leukocytosis the diagnosis is appendicitis.

UNDUE DEPENDENCE ON SEDIMENTATION TEST

Many tests have been devised merely because the advocates of these tests, finding the tests positive in some particular disease and negative in normal persons, concluded that the test was diagnostic of this disease. In many instances the test is merely positive for some general type abnormality as fever. A vast amount of literature has been accumulated on the so-called blood sedimentation rate. Following loose reasoning, the blood sedimentation rate was supposed to be diagnostic of a wide variety of conditions. It was pointed out, when the sedimentation rate was being discussed in the early stages, that in normal persons there was a normal sedimentation rate. In many, but not in all, diseases there seemed to be an alteration in the sedimentation rate. It was merely one of the many things that happen; the human organism is not normal. Changes in a sedimentation rate in the same individual may be of some value in determining the course of the disease and indeed the prognosis. After a good many years, that is the conclusion which has emerged out of a huge mass of contradictory and conflicting conclusions and summaries. Even now undue dependence is placed on this test, in the first place because there is no specificity about this test and, in the second place, because there may be some other condition which is altering the rate besides the condition which is being studied.

CAREFUL DEDUCTIONS NECESSARY

In every field of medicine one could multiply the argument for the necessity of careful and thorough deductive reasoning. As I have pointed out elsewhere, the examination of the urine is not a perfect test for nephritis or diabetes. Indeed, the examination of both the blood and the urine, while giving a great deal of information, may be neither dependable nor precise. The reason for this is that the morbid processes are within the cells and the blood itself is only one step nearer the cells than is the urine. There is a good deal of evidence that the blood is used for a sewerage system and does not always reflect exactly the condition of the cell. There may be other factors which may affect the blood and urine figures. For example, a marathon runner will present a urine of acute nephritis. A starving patient will show a blood nonprotein nitrogen content which is that of uremic coma. Furthermore, if he is starving and has enough acidosis to produce a high nonprotein nitrogen level, he may also present a urinary picture of nephritis. It would be easy to multiply these casual observations in the field of medical investigation but, suffice it to say, every procedure is subject to each of the factors which have been considered.

Even if careful of our observations, our statistics and our logic, we must admit that many of the processes which we study are little understood. From time to time that will result in seeming refutation of the value of logic. The so-called Wassermann test is an adaptation of the complement fixation test. It was originally considered to be specific because, presumably, a specific antigen was used. We now know that the antigen is not specific, yet the test runs as closely to being perfectly accurate as one can expect on the law of chances. Somewhere there is a reason for it. While we accept with gratitude the extraordinary accident that has given us such a useful test as the Wassermann test, this experience is a chastening example of our fundamental ignorance and it points to the necessity of avoiding at all times a completely dogmatic point of view.

Hard, sound reasoning and logical deduction can be developed as a part of the necessary equipment of the medical investigator. They are as vital as accurate observation or adequate statistical data. Wishful thinking and rational-

ization belong to the same category of scientific sins as erroneous observations and misleading statistics. It should be and, indeed, must be the only satisfactory destiny of medicine to be the science of medicine. As such, the science of medicine will, we trust, be grouped with the physical sciences and the natural sciences. We like to think that we are close kin to these somewhat rigid sciences wherein data are factual and statistically adequate, and reasoning is as sound and relentless as the limitations of the present knowledge permit.

TRENDS IN MEDICAL PRACTICE

Abridgment of presidential address by Dr. Fred W. Rankin of Lexington, Ky., read before the Postgraduate Surgical Assembly, the ninth annual meeting of the Southeastern Surgical Congress, Louisville, Ky., March 8, 1938, and published in the Southern Surgeon, June 1938.

The two most noticeable trends in medical practice to develop in the last quarter century are, first, specialization; the second, the injection of governmental influence, both state and federal, into control. The enormous trend toward specialization and also practice by cooperative consultation methods seems to portend that in another generation medicine may largely be practiced, in urban centers at least, around (*a*) medical schools and teaching hospitals, (*b*) nonteaching hospitals, (*c*) loosely associated consultation groups with a central laboratory, (*d*) privately owned clinic groups, (*e*) independent consultation and (*f*) general practice.

The essential changes which are now taking place and which the practice of medicine has been undergoing for a quarter of a century demand a different policy in the matter of graduate training which supplements the undergraduate course. Graduate training concerns the entire medical profession and falls readily into three groups: (1) for the specialist, (2) the research worker, and (3) that group of medical men desiring either to change from the type of general practice they are doing or who, maintaining their present type of practice, desire to keep abreast of the scientific times.

Many of the practitioners of necessity find themselves engaged in the fields of both internal medicine and surgery. This is the group which will continue to gain advantage from refresher courses of short duration in graduate institutions, by attendance on postgraduate assemblies and by extension courses under control of state medical societies. The whole plan of practice cannot be changed abruptly or completely, but provision must be made for their professional stimulation and advancement by some scheme incorporated in any broad plan of postgraduate instruction.

The research worker, on the other hand, represents but a small group of the profession. The problem of his training almost invariably is put back into undergraduate medical institutions and foundations equipped with endowments for this purpose. Lack of time or the absence of research spirit plus the urgency of changing economic relationships will decrease the number of available research men, but they should be encouraged and stimulated to further study.

Today among physicians of the United States one out of six is a full time specialist and an almost equal number may be listed as part time specialists. It is futile to deny that specialization is rapidly extending throughout the profession. Perhaps it is the result of evolution in the development of special, highly technical procedures, but there is an obligation on the profession to see that the public is protected against self-appointed and inadequately trained specialists.

The hospital is the keystone of graduate surgical teaching. Operative experience must be provided for surgeons. No graduate course however long or satisfactorily administered from the standpoint of surgical pathology and diagnosis is complete unless the candidate actually carries out the operative act in a sufficiently large number of cases to warrant receiving his preceptors' stamp of approval as an accomplished surgeon.

It is the responsibility of the profession to make these men safe by providing them adequate training. The great hospitals of the teaching centers and clinics are not sufficient in number for this purpose and consequently facilities must be sought in nonacademic hospitals conducted by proficient staffs under controlled conditions. . . .

AMERICAN BOARD OF SURGERY

Fostered by the American Surgical Association and participated in by sectional surgical societies, the surgical section of the American Medical Association, and the American College of Surgeons, the American Board of Surgery was organized. The avowed purpose of this board is to increase the opportunities for surgical teaching and to elevate the standards of surgery. . . .

The Council on Medical Education and Hospitals of the American Medical Association has more recently launched a campaign to make a study of all phases of graduate medical education. A Commission of Graduate Medical Education, authorized by the Advisory Board of the Medical Specialties, has been created to mobilize current opinion as to how the problems in their field can best be solved and to formulate the fundamental principles involved in graduate training. . . .

These concerted programs by different national bodies show the intense interest the medical profession has in affording more opportunities to more men for training, and the desire to cooperate with one another. These authoritative bodies promise a definite plan for the future which will be practical and workable for the education of a specialist in any particular field.

SOCIALIZATION OF MEDICINE

The second major trend which is influencing the practice of medicine and probably will project its shadow largely into the future unless there is deviation from its apparently charted course is the attempt of the government to subsidize and control health services. Efforts of persistent, persuasive, purposeful, probably public minded, but certainly politically controlled, pressure groups to extend public health agencies and to dominate, under governmental auspices, medical service, if successful, will bring us nearer and nearer to some modified state of socialized practice. This is a menace intolerably abhorrent to the majority of practicing physicians. Bureaucratic control, whether by state or federal agencies, inevitably, if one may judge by the experiences and reports of Continental attempts at socialization of medicine, results in a lowering of the standards of professional care and obtunds the ambition and interest of the practicing physician.

It is unbelievable that socialization of medicine, as the picture is usually projected, is an immediate possibility in the United States, nor can one willingly accept the thesis that it is a necessary part of an evolutionary socioeconomic scheme to which we are apparently committed. The practice of medicine in this country has rested securely in the hands of organized medicine for centuries and, while there may be justification at times to chafe at what appears to be ultraconservatism, it is well to remember that in times of change it is improbable, indeed it is foolish to assume, that any sociopolitical agencies should have at heart the improvement of the nation's health more than scientific bodies. It is equally unlikely that these groups are better able to estimate and forward any movements to improve the general status of the public's health than those whose everyday task it is.

Despite charges of proponents of radical change in medical practice there is no obstruction on the part of the organized medical profession to progress nor is there a tendency to be reactionary in method. Under no compulsion from any source, the medical profession has continued through many vicissitudes, extending back into remote ages, to follow a charted course of advancement which has resulted always in elevation of standards of education and practice in curative and preventive medicine. The medical profession is continually subjecting its methods of practice to careful, painstaking and unbiased scrutiny and demanding of its adherents a higher grade of efficiency. The reduction of infant mortality, the advances in combating communicable diseases, the increase of life expectancy and the wholehearted support of the present movement within its own ranks to certain qualified specialists are samples of accomplishments which refute many of the accusations of its critics.

That the present turbulent social unrest throughout the world necessitates certain changes in medical practice is admitted by all. That governmental systems giving funds raised by taxation could be advantageously integrated with the present system of caring for the indigent and near indigent and without subsidizing the service is hardly debatable. Many arguments for cooperation and coordination of governmental agencies and the present system of practice of medicine may be advanced. However, an enormous amount of study and correlation of data must inevitably be done before a definite decision on the necessity of change of any magnitude in today's present system of practice is arrived at.

No medical man would object to changes in medical practice which were advantageous to the nation's health and which beyond cavil were not politically fostered, dominated and directed. The medical profession has no disinclination to aid and cooperate with authorities whose aim is improvement of the health of the underprivileged, but the extension of a health program which is all inclusive and controlled by federal authorities wholly or in part seems an extraordinary procedure distinctly open to question.

OBJECTIONS TO STATE MANAGED MEDICINE

The main objections to state-managed medicine fall into three categories: first, the huge increase in the cost of medical care; second, the decline of medical services, and, third, the abuses both political and professional which this type of service encourages. The economic considerations under even mild scrutiny indicate a great increase in the cost of medical care due to enormous administrative expenses. If one may judge by any standards of governmental control hitherto imposed, this is an inescapable conclusion.

To the second proposal that medical services depreciate under bureaucratic control, one need only point to the incontrovertible facts that mortality and morbidity are not reduced, graduate education and study decline, research languishes, and political issues become predominant and human values secondary.

A united front by organized medicine must be presented to these proponents of political

domination and agitators for cataclysmic changes in the present day type of practice. The medical profession itself has a concrete answer to socialization in the type of service it renders to the community. Its obligation is to continue to practice good medicine and to advance the cause of preventive medicine and research in the full realization that the care of the sick is the paramount duty of the doctor.

Any system which places medical service in a position to be influenced by political expediency and opportunism inevitably forces scientific bodies under the control of nonmedical agencies and defeats the professed idealism of the ambitious advocates of health control outside of professional medical organizations. With a reduced type of service, with an increased cost, with a consideration of the experience of European countries which have adopted some form of socialized medicine, all repugnant to the individualism of a true democracy, shall we not consider well before any visionary, untried schemes in this country make us deviate from the well tried methods of practice handed down to us from the pioneers of our guild?

The medical profession believes that these accomplishments should be carried out in regular and thoughtful sequence. The health of the nation is safe in the hands of the medical profession.

STUDENT EPHRAIM McDOWELL

The typical American story of the first ovariotomy has a prominent place in the history of medicine. The father of ovariotomy, Dr. Ephraim McDowell, was a Virginian by birth (1771) who had received the best education that the early days in America could afford. When 19 he began the study of medicine as an apprentice to a busy practitioner and after three years went to the University of Edinburgh for additional training. Returning in 1795, he began the practice of medicine at Danville, Ky., then a village of about 500 people on the frontier of the new civilization. Having recently attended one of the great medical schools and having been under the influence of famous independent teachers, notably John Bell in Scotland, McDowell was soon engaged in extensive practice and was traveling long distances from Danville by horseback. Fourteen years after he began practice he was called out 60 miles to see a Mrs. Jane Todd Crawford, who considered herself to be pregnant and had exceeded the allotted time. Dr. McDowell examined Mrs. Crawford and explained to her that she was not pregnant but was suffering from an enlarged ovarium. He explained that her condition was serious and that, although he had never heard of an attempted surgical removal, if she would come to Danville he would endeavor to remove the tumor. Mrs. Crawford was quite willing to undergo the experiment and she rode the 60 miles on horseback with her enlarged abdomen resting on the horn of the saddle. With no experienced assistants and in his own home under conditions that would shock surgeons of today, McDowell opened the abdomen and for the first time successfully removed a large ovarian cyst, including the "sack which weighed seven pounds and one half" and fifteen pounds of a "gelatinous-looking substance." Mrs. Crawford recovered and returned home by horseback in twenty-five days in good health. She died thirty-two years later at the age of 79. The house in which McDowell performed the first ovariotomy in 1809 is still in Danville, where also is a beautiful monument erected under the sponsorship of the Kentucky State Medical Association to mark McDowell's present burial place.

Little is known of McDowell's student days. Schachner's[1] research reveals that he was a conversationalist with ready wit and that he could sing English and Scotch songs with comic effect. He was temperate and did not use tobacco. At 31 he married the 18 year old daughter of Kentucky's first governor, and to them six children were born.

In Edinburgh McDowell became so interested in anatomy and surgery as a private pupil under the famous teacher John Bell that he was not inclined to give the university courses the attention which justified awarding a degree. Trout[2] writes that he was accompanied to Edinburgh by Samuel Brown, another medical student, who was a brother-in-law of McDowell's preceptor, Dr. Alexander Humphreys. In his letters Brown indicates that McDowell attracted the attention of his classmates, who selected him to defeat a boastful Irishman in a foot race of 60 yards for a stake of 10 guineas. McDowell who was of Scotch origin, purposely allowed the Irishman to win the smaller stake and then challenged him to a longer race with a stake of 100 guineas, which he easily won.

Pecuniary difficulties in his student days may have required further consideration, for his father wrote to his son-in-law as follows:

> I fear that I shall not be able to give Ephraim money sufficient to take with him, if he goes to Scotland next fall. I forgot to tell Ephraim to write me as soon as possible when he is to set out for Scotland. I would be glad he did not go till September next, as by that time I may have at my power to send him some more money than I can do this spring. I have enclosed Ephraim a warrant on the treasure for sixty-five pounds and kept a duplicate of it lest it should be

1. Schachner, August: Dr. Ephraim McDowell, "Father of Ovariotomy": His Life and His Work, Bull. Johns Hopkins Hosp. 24:153 (May) 1913.
2. Trout, Hugh H.: The "Scotch-Irish" of the Valley of Virginia, and Their Influence on Medical Progress in America, Ann. M. Hist. 2(n.s.):71 (Jan.), 162 (March) 1938.

lost, and I hope to send him another warrant in April or May next for seventy-five pounds. Pray keep your eye on Ephraim and see how he conducts and let me know your opinion, if I might trust him with what money may be sufficient for him to Scotland.

It is unfortunate that McDowell wrote so little. His only contributions to medical literature were two papers published in 1817 and 1819 concerning his first five cases of ovariotomy. Of eight other cases which followed he wrote nothing. James K. Polk, later President of the United States, was one of McDowell's patients whom he treated for "stone" and for hernia. Although he had earned fame, it seems that he did not especially desire notoriety.

CAN STUDENT FAILURES BE REDUCED?

Of the students who enter medical schools, from 10 to 50 per cent never graduate. It would be impressive if the effect on the personality and character of the subsequent careers of the failing students could be analyzed. While no one wishes a graduate to enter practice unless properly qualified, some doubt remains as to whether every possible expedient has been adopted to reduce failures.

The answer does not lie merely in the selection of students. The technic of selection is imperfect and will always be so. No technic dealing with people is better than the procedure in applying it, and here the human factor enters. It is desirable to improve the procedure in student selection, but it is believed that other expedients may be employed to reduce student failures. Some suggestions are offered for reducing student failures.

At the Medical College of Virginia, first year students in the medical school were requested last fall to report two weeks earlier than students in the upper classes. During this extra time the regular class schedules operate, although the amount of work assigned daily at first is somewhat less than has been assigned to freshmen in previous years. It is thought that beginning the year with a slow tempo will enable students to catch in time the accelerated stride expected of them more certainly, and that seems to have been the case. As yet there are no definite results from the experiment and no assurance that it will be continued indefinitely. The impression has been gained, however, that it may have value and should be continued long enough to ascertain whether that is true.

Our professor of anatomy has made another suggestion, namely that a larger group of students be admitted to the first year class and that they report two or three weeks earlier with the expectation that at the end of six or eight weeks the class be chosen to be carried through the year. This would have the effect of turning back those students which are eliminated in time for them to enter some other course of study during the same year or take up some type of employment. The matriculation would be tentative and the sense of failure, which is a great blow to some types of personality, would be softened.

The student is not the only factor in failures. Poor teaching makes its contribution and better teaching beginning in the lower grades and continuing through high school and college might well have more consideration in professional schools.

Liberal arts faculties often do not realize what is expected of students in the medical school. It might be emphasized repeatedly to the various college associations that generally medical students are required to carry a larger volume of work with a higher degree of accuracy than the students of liberal arts colleges. Frank discussions with the deans and faculties of such colleges is likely to be the more direct method of placing this emphasis.

It has been suggested that the preparation for medicine be shortened one year and the medical course lengthened one year, the first year of the five year medical course to include the completion of premedical preparation and beginning of medical study. It is argued that the proper transition from college to medical school could be made advantageous during this period.

The fear of failure suffered by some students may be a dominant factor in their failure. Fear devastates some types of persons and the fear complex should be allayed whenever possible. The proper faculty-student relationship may contribute much to this end. Upper classmen also play a role in developing the fear complex among students of the lower classes by exaggerating the difficulties and hardships of progress through the medical course. While this is not an easy situation to deal with, it can be counteracted in part by a proper stand by the faculty.

THE PEDAGOGIC SIN

The reduction of student failure is a complex problem. One student may be better suited in one set of circumstances and another student may be better suited in different circumstances. Teaching of a certain kind may be better for one student and may not be for another student. The pedagogic sin lies in ignoring the issue on the assumption that the trouble lies solely with the student and that the school has no responsibility in the matter.

A curriculum like medicine, which is largely prescribed, cannot take into account to an ample degree the full import of individual differences. It is too much to expect that a student will do quite as well in chemistry as in anatomy, or

Abstract of a paper by W. T. Sanger, LL.D., president of the Medical College of Virginia, read before the Southern Medical Association in New Orleans, Nov. 30-Dec. 2, 1937, and published in the Southern Medical Journal, August 1938.

vice versa. In dealing with students one must keep constantly in mind the principle of individual differences; otherwise, injustices will be committed.

It would be difficult to segregate preventable from inevitable failures. The author's effort here has been simply to state the problem and to express the belief that something can be done to solve it in part; something definitely constructive must be ever pursued, always with an experimental attitude.

THE GENERAL PRACTITIONER AND NATIONAL PHYSICAL FITNESS

In a symposium on the National Campaign for Physical Fitness in England, the role of the general practitioner was discussed by W. W. Forsyth, M.B.[1] The general practitioner, he said, has little influence on the well being of the individual in early life because this care has been taken over by the public health officer, who also claims the postnatal, preschool and school years. The public health officer also claims the individual's infectious illnesses and a main part in his vaccinations and immunizations. Only when the individual becomes a fledgling, Dr. Forsyth said, does the family physician get a chance. There remain, then, three lines of activity for the general practitioner. The first is instruction in measures for maintenance of health. The public has a colossal appetite for matters pertaining to health and the general practitioner, with his wide experience of people, fads and circumstances, is best fitted to give unbiased opinions on the value of health measures.

The most valuable contribution the general practitioner can make in safeguarding health is by conscientiously caring for the sick. In so doing he plays the greatest role in the maintenance and restoration of health. Does he not guard the patient against complications and impress on him rules of health applicable to his case? He advises people how to maintain their health and encourages them to be examined as soon as they feel that there is anything wrong. If he had a larger share in the public health services he would do more in the way of prevention; but that line of approach is often closed to him. He is the backbone of the staffs of the smaller hospitals throughout the country, as well as in numerous other institutions where love of his work is his only reward.

The first thing the general practitioner asks of you is loyalty in telling him your symptoms early and fully; loyalty in believing his opinion when it does not happen to fit with your own; loyalty to his treatment even when it does not meet with your neighbor's idea as to what he ought to do; loyalty in not forsaking him because a neighbor persuades you that another doctor would know better how to deal with your case. I know a man, said Dr. Forsyth, who walked through several streets with a bandage on his neck on his way to the doctor. He met several inquiring friends and arrived at the doctor's office with nine different cures for boils. And it was not a boil that he had after all.

The health services will be all the better for more cooperation with the general practitioner. It is nonsense to give as an excuse that he is not sufficiently trained in preventive medicine. He is among the few citizens who are in the position of being able to appraise public health measures. He is not likely to give his whole hearted support to what may be called the recreational type of health activity, of which the "keep-fit classes" are an example. He feels that the first essential of exercise is the open air. He will give all his support to the development of playing fields and more open spaces, and to physical contests.

The general practitioner would teach the public to avoid fads and face rather than fear symptoms. As family physician he is an indispensable instrument of national health policy, and without his assistance as health adviser and as a principal liaison between the homes of people and the statutory medical services, these services cannot function to the maximum in a comprehensive policy for promoting the health of the people. Dr. Forsyth closed his discourse with the words of an important and unbiased committee:

> We regard it as of primary importance that the organization of the health services of the nation should be based upon the family as the normal unit and on the family doctor as the normal medical attendant and guardian. It is not for disease that provision has to be made, but for persons liable to or suffering from disease. The first essential for the proper and efficient treatment of individual persons is therefore not institutional but personal service, such as can be rendered to people in their own homes, only by a family doctor who has the continual care of their health; to whom they will naturally turn for advice and help in all matters pertaining thereto; who will afford them such professional services as he can render personally; and who will make it his duty to see that they obtain full advantage of all the further auxiliary services that may be otherwise provided.

1. Forsyth, W. W.: The Role of the General Practitioner, J. Roy. San. Inst. 58:540 (May) 1938.

Mental Defectives and Epileptics.—Ninety-five per cent of all mental defectives and epileptics in the United States receiving institutional care were found in state institutions, according to the Bureau of Census figures for 1936. About 4 per cent of these patients were in private institutions and 1 per cent in city-owned institutions. A much higher percentage of epileptics died in institutons during that year than did mental defectives. *Public Health Reports*, May 27, 1938, states that at the end of 1936 there were 114,574 such patients in institutions throughout the country. This number does not give even an approximate measure of the total number in the country, since many are at large or in prisons, reformatories, alms houses and hospitals for mental disease.

Medical College News

Medical schools, hospitals and individuals will confer a favor by sending to these headquarters original contributions, reviews and news items to be considered for publication in the Student Section.

Annual Meeting of Association of Medical Students

The Association of Medical Students will hold its annual meeting in Philadelphia, December 28-30, with the five medical schools in the city acting as hosts. The convention headquarters will be at the Hotel Philadelphia, Thirty-Ninth and Chestnut streets. There will be clinics, demonstrations and lectures at all the medical schools, and scientific exhibits, including the exhibit on "Cardiovascular-Renal Disease, Clinical and Pathologic Correlation," which was awarded a gold medal at the annual session of the American Medical Association in San Francisco last June. There will also be commercial exhibits, hobby exhibits, motion picture demonstrations, including "Artificial Circulation with Survival of the Animal" and "Delivery of Triplets," a convention dance Thursday evening, and a banquet Friday evening, at which Dr. R. G. Leland, director of the Bureau of Medical Economics of the American Medical Association, and Dr. James H. Means, professor of medicine, Harvard Medical School, will discuss "Trends in the Distribution of Medical Care."

The registration fee for the convention is $7, which includes two nights at the hotel, the banquet, the luncheon, the dance, and transportation to the medical schools to attend the lectures and demonstrations. The registration fee for those not stopping at the hotel will be $3.50. Furthermore, each delegate to the convention will receive, without charge, a copy of the convention book containing articles by well known physicians, the annual committee reports, and other material.

The theme of the 1938 convention is "Preventive Medicine."

The tentative program is in part as follows:

Wednesday, December 28

8-10 a. m.—Registration.

10 a. m.-12:45 p. m.—Lectures, demonstrations and clinics at University of Pennsylvania.
- Dr. O. H. Perry Pepper, professor of medicine, "Preventive Phases of Internal Medicine."
- Dr. Eldridge Eliason, professor of surgery.
- Dr. A. N. Richards, professor of pharmacology, "Renal Physiology."
- Dr. David Drabkin, assistant professor of physiologic chemistry, "Spectroscopic Studies of Pigment Metabolism."
- Dr. Eliot R. Clark, professor of anatomy, "Development of Blood and Vascular Channels in the Rabbit's Ear" (motion pictures).

1 p. m.—Luncheon, Hotel Philadelphian.
- Address of Welcome: Dean William Pepper, University of Pennsylvania School of Medicine.
- Address: Dr. R. R. Spencer, senior surgeon, U. S. Public Health Service, "Preventive Medicine."

3-5 p. m.—Discussions.

7:30 p. m.—at Hotel Philadelphian:
- Motion Pictures: "Delivery of Triplets."
- "Artificial Circulation with Survival of the Animal."
- Student scientific papers.

Thursday, December 29

10 a. m.-3 p. m.—at Woman's Medical College:
- Dr. Catherine Macfarlane, professor of gynecology, "Prevention of Carcinoma of the Cervix."
- Dr. Helen Ingleby, professor of pathology, "Breast Tumors."
- Ben King Harned, Ph.D., professor of pharmacology, "Eugenic Aspect of Diabetes in Rats."

10. a. m.—at Temple University School of Medicine:
- Dr. W. Wayne Babcock, professor of surgery, "The Surgical Aspects of Disease of the Thyroid Gland."

12:30 p. m.—Dr. John A. Kolmer, professor of medicine, "The Present Status of Methods of Preventing Acute Anterior Poliomyelitis."
- Demonstration in the Bronchoscopic Clinic, Drs. Chevalier Jackson and Chevalier L. Jackson in charge.
- Recent Studies in Neurology. Drs. Walter I. Lillie, Temple Fay and Michael Scott (motion pictures).

At Hahnemann Medical College:
- Clinics:

9-12 a. m.—General surgery, Dr. William M. Sylvis.

2-7 p. m.—Orthopedics, Dr. John A. Brooke.

7 a. m.-noon.—Gynecology, Dr. E. B. Craig.

12:30-5 p. m.—Nose and throat, Dr. C. B. Hollis.

Exhibits at Hahnemann Medical College:
- I. Cardiovascular-Renal Disease. Drs. Frank W. Konzelmann, Edward Weiss, Lawrence W. Smith, Walter I. Lillie and Edwin S. Gault.
- II. Neurophysical demonstration of spatial brain lesions, Drs. E. H. Dickinson, J. S. Lehman, H. B. Fisher and H. J. Rickard.
- III. Diseases of the chest, Dr. J. W. Frank, clinical chief of x-rays and Dr. J. Antrim Crellin, clinical chief of outpatient chest clinic.

9 p. m.-1 a. m.—Convention dance.

Friday, December 30

10 a. m.—at Hotel Philadelphian.
- Business Meeting. Reports of officers and committees.
- Election of officers.

7 p. m.—Banquet.

The Appointment of Interns in New York

Regulations to safeguard the merit system in the appointment of the nearly 800 interns that serve the New York City municipal hospitals have been announced by the commissioner of hospitals, Dr. S. S. Goldwater. Heretofore the medical boards of the individual hospitals have determined their own procedures in the selection of interns and some of the boards have not conducted written examinations while others have. The new regulations require that the medical boards adhere to certain basic requirements in procedure that will be uniform for all the hospitals with slight modifications to permit a reasonable degree of flexibility for certain hospitals with special clinical makeups. In rating the interns, preliminary education and scholastic records will rate 30 per cent, written examinations held under identification by numbers and without knowledge of the name 30 per cent, and rating based on oral examination 40 per cent. The appointment of successful candidates is a charter function of the commissioner of hospitals and will be based on the results obtained under the three sections of the examination.

Dr. John W. Spies Appointed Dean at Texas

The Board of Regents of the University of Texas has appointed Dr. John W. Spies as dean of the medical school at Galveston and professor of public health. Dr. Spies was born in Texas, graduated from Harvard University School of Medicine in 1924 and received the degree of master of science from Yale University School of Medicine in 1930. He interned at St. Luke's Hospital, New York, served a residency and clinical fellowship at Memorial Hospital, New York, and served fellowships at the University of Louvain. He was formerly instructor in surgery and pathology at Yale University School of Medicine and associate professor of surgery at Peiping Union Medical College, China. From 1935 to 1938 he was director of a hospital in Bombay, India. He has the certificate of the National Board of Medical Examiners. He is the brother of Dr. Tom D. Spies, professor of medicine at the University of Cincinnati, who has recently reported research on the treatment of pellagra, particularly with nicotinic acid.

Louisiana Personal

Dr. William B. Clark, New Orleans, was recently made associate professor of ophthalmology at Tulane University School of Medicine, and placed in charge of the eye department of the Hutchinson Memorial Clinic and of graduate instruction in ophthalmology at the Eye, Ear, Nose and Throat Hospital.

Student Distinguished Service Award

The faculty of Wayne University College of Medicine, Detroit, has established a distinguished service student award to be made to the senior student who during his four years in the college of medicine has rendered noteworthy service to the student body and faculty in promoting the welfare of the college and the university. For 1938 the award, which is in the form of a watch-charm emblem, went to Harold Longyear, who is now interning at Grace Hospital. The Alumni Association of Wayne University College of Medicine each year gives an award of $50 to the student who has the highest scholastic standing for his four years of medical study, and this award in 1938 went to Aldred Bleier, now interning at Receiving Hospital.

National Board Questions in Anatomy

Following are the questions used by the National Board of Medical Examiners in anatomy in part one of the examination, held September 12-14:

Answer any five questions. 1. Locate (*a*) the subcutaneous or external inguinal ring, (*b*) the abdominal or internal inguinal ring, (*c*) the femoral ring. Give in each case the boundaries of the ring, important relations, and the structures it transmits. 2. Discuss the histology of the different ways by which bone can grow. 3. Give the exact position of the sympathetic trunk (lumbar ganglionated chain) in the abdomen. From what sources does it receive preganglionic (activating) fibers and what branches does it give off? 4. Describe the embryonic development of the upper jaw and give all the deformities which may occur in its development. 5. Give the origin and complete course of the main arterial trunks supplying the brain as a whole. Describe their terminal anastomosis. 6. In what localized regions and parts of the body is fat commonly stored and for what general purposes? What regions show the loss most, and what regions least? Mention two regions where fat is not found.

Michigan Personals

In October the executive staff of the University Hospital, Ann Arbor, appointed Dr. Cyrus C. Sturgis as chairman of the committee on interns.——Charles Brandman, Toledo, Ohio, a member of the junior class of the University of Michigan Medical School, was killed in an automobile accident in Toledo, September 30.——Dr. Joseph W. Nadal, a 1937 graduate of Harvard University Medical School, has joined the staff of the department of surgery at the University Hospital, Ann Arbor, and will serve as research assistant during the coming year. Dr. Nadal interned last year in the Geisinger Memorial Hospital, Danville, Pa.——Dr. John M. Dorsey, associate professor of psychiatry, University of Michigan Medical School, has resigned to engage in private practice in Detroit; he will also be psychiatric consultant to the Children's Center maintained by the Children's Fund of Michigan.

The Annual Blockley Dinner

The fifty-second annual dinner of the Association of ex-Resident and Resident physicians of the Philadelphia General Hospital was held December 6 at the Bellevue-Stratford Hotel, Philadelphia. Dr. Randle C. Rosenberger, professor of preventive medicine and bacteriology at Jefferson Medical College, Philadelphia, was the guest of honor. Dr. Rosenberger, who graduated from Jefferson Medical College in 1894, was assistant pathologist at old Blockley in 1898 and director of the laboratory there from 1903 to 1919. Among the guests of the association were Dr. William C. Hunsicker, director of public health for the city of Philadelphia, Judge Harry S. McDevitt, Dr. William G. Turnbull, superintendent of the Philadelphia General Hospital, and Dr. Robert C. McElroy, president of the Blockley Medical Society. Dr. John J. Dailey, who is president of the association this year, was toastmaster.

Founders' Day at Medical College of Virginia

The Medical College of Virginia, Richmond, celebrated Founders' Day December 1, marking the hundred and first anniversary. Mr. Virginius Dabney, editor of the Richmond *Times-Dispatch*, spoke on "Medicine in a Changing World." The exercises were preceded by a procession of visitors, the faculty and members of the student body.

Health Examination of Students at Michigan

For the last four years all students entering the University of Michigan Medical School have been given a routine x-ray examination of the chest, and for the last two years all students enrolled in the medical school have been given annual physical examinations. The incidence of active pulmonary tuberculosis found among 2,342 male students examined in 1938 was 0.38 per cent, while among 1,022 female students examined the incidence was 0. This is in contrast to a rate of 0.74 per cent of active tuberculosis found among male students in 1935 and 0.87 per cent found among female students in that year.

California Personal

Dr. Langley Porter, dean of University of California Medical School, is visiting medical schools of universities of the United States and Canada, during which time Chauncey Leake, Ph.D., professor of pharmacology, is acting dean.

The Jones Lectures at Oregon

Dr. Arno B. Luckhardt, professor of physiology at the University of Chicago, gave the annual N. W. Jones lectures November 2-4 at the University of Oregon Medical School, Portland. His subjects were "Dr. William Beaumont and the Beaumont Memorabilia of the University of Chicago," "Academic or Unsuccessful Research" and "A Neglected Chapter in Anatomic Illustration and Instruction."

Connecticut Personal

Ira V. Hiscock, professor of public health in the Yale University School of Medicine, New Haven, Conn., has been elected president of the National Health Council for 1938.

Appointments at Harvard

The following appointments have been announced by Harvard University, Boston, for one year from September 1:

Dr. Augustine Thornton Scott, Lexington, Mass., assistant in medicine.
Dr. William F. Orr Jr., Nashville, Tenn., assistant in neurology.
Joseph Shack, Mattapan, Mass., assistant in physical chemistry.
Heron O. Singher, Red Hook, N. Y., assistant in physical chemistry.
Dr. Thomas W. Botsford, Chillicothe, Mo., assistant in surgery.
Timothy J. Kurotchkin, Peiping, China, research associate in bacteriology and immunology.
Ernst T. von Brucke, Innsbruck, Germany, research associate in physiology.
Dr. John H. Venable, assistant professor of anatomy at Emory University, research fellow in anatomy.
Dr. Jonathan F. Meakins, Montreal, Canada, research fellow in bacteriology.
Dr. William E. Smith, Baltimore, research fellow in bacteriology.
Willy K. Rieben, Berne, Switzerland, research fellow in biologic chemistry.
Dr. John Romano, Milwaukee, research fellow in neurology.
Haim Haimovici, Rumania, research fellow in physiology.
Per O. Therman, Helsingfors, Finland, research fellow in physiology.
Dr. Albert Y. Kevorkian, Chestnut Hill, Mass., research fellow in surgery.
Dr. Nathan Rudo, Baltimore, research fellow in pathology (Oct. 1, 1938, to Sept. 1, 1939).
Dr. Richard G. Horswell, Chicago, research fellow in medicine (Jan. 1, 1939, to Sept. 1, 1939).

Son Succeeds Father in Orthopedic Department

Dr. Joseph A. Freiberg, associate professor of orthopedic surgery, will succeed his father, Dr. Albert H. Freiberg, as head of the department of orthopedic surgery of the University of Cincinnati College of Medicine. The elder Dr. Freiberg resigned in July after forty years of service. Since then his son has been acting head.

Temple Establishes Four Year Course for Technicians

Temple University has established a four year course in medical technology leading to the degree of bachelor of science in medical technology. The work of the first two years is taken in the college of liberal arts and sciences and the last two in the medical school and Temple University Hospital.

New Department in Public Health at Loyola

A new department offering courses leading to the master's degree in public health for graduate students, the certificate and bachelor of science degree in public health nursing, courses in preventive medicine for medical students and advanced bacteriology, has been established at Loyola University School of Medicine, Chicago. It is designed to attract sanitarians, public health nurses and health officers. Dr. Earl E. Kleinschmidt is in charge of the new department.

Philadelphia Personal

Dr. James Reid Martin, assistant professor of orthopedic surgery, Jefferson Medical College, Philadelphia, has been appointed chief surgeon at the State Hospital for Crippled Children, Elizabethtown.

Promotions and Appointments at Georgia

The following promotions and appointments at the University of Georgia School of Medicine, Augusta, for the session 1938-1939 have been announced:

Promotions:

Dr. Frederick A. Mettler to professor of gross anatomy.
Dr. Edward S. Cardwell Jr., to assistant professor of pathology.
Robert B. Dienst, Ph.D., to associate professor of bacteriology and public health.
Dr. Harvey M. Cleckley to professor of psychiatry.
Dr. Meinhard Rehbinow to instructor in pediatrics.
Dr. John H. Sherman to professor of surgery.
Dr. Richard F. Slaughter to professor of neurosurgery.
Dr. Luzius N. Todd to professor of tuberculosis.
Dr. Perry P. Volpitto to professor of anesthesia.
Dr. Richard B. Weeks to assistant professor of clinical surgery.

Appointments:

Dr. Solomon Tannenbaum to assistant in clinical medicine.
Cecilia C. Mettler, Ph.D., to instructor in medical history.

International College of Anesthetists Awards Medal

Francis M. Whitacre, Ph.D., assistant professor of organic chemistry at Case School of Applied Science, Cleveland, was awarded the medal of the International College of Anesthetists at the annual meeting in New York, October 19. The award, which was made in recognition of his work on the chemical structure of anesthetics, consisted of a medal and a certificate naming Dr. Whitacre as a specialist in anesthesia and a fellow in the International College of Anesthetists.

Puerto Rico Personal

Dr. Roman Kenk, professor of zoology at the University of Ljubljana, Yugoslavia, has been appointed associate professor in the department of biology of the University of Puerto Rico.

University of Cincinnati

Dr. Max M. Zinninger recently resigned as assistant dean of the University of Cincinnati College of Medicine, Cincinnati, to devote more time to surgical research. Dr. Stanley E. Dorst is now assistant dean and Dr. Sander Goodman has been appointed assistant to the dean, Dr. Alfred Friedlander. Among recent gifts to the university was one of $27,500 given anonymously for the department of psychiatry.

Changes at Louisiana State University

The following appointments to the Louisiana State University School of Medicine, New Orleans, among others, have been announced:

Dr. Albert E. Casey to assistant professor of pathology and bacteriology.
Dr. Rupert E. Arnell, senior assistant professor of obstetrics and gynecology.
Dr. Athol S. Kenney, assistant professor of pediatrics.
Dr. Rawley M. Penick, assistant professor of surgery.

Promotions on the faculty include the following:

Dr. Dan D. Baker to senior assistant professor of anatomy.
Dr. George N. Bonstrom, assistant professor of anatomy.
Dr. Adolphus H. Bellmann, assistant professor of anatomy.
Dr. James L. Gouaux, assistant professor of physiology.
Dr. Robert H. Bayley, assistant professor of medicine.
Dr. Karl LaVon Dickens, assistant professor of medicine.

Lectures to Students in Public Health at North Carolina

Dr. Louis L. Williams Jr., senior surgeon, U. S. Public Health Service, lectured on malaria to the students in the division of public health at the University of North Carolina School of Medicine, Chapel Hill, N. C., October 31 and November 1. Dr. Mark V. Ziegler, senior surgeon, U. S. Public Health Service, showed moving pictures of the work of the U. S. Public Health Service to the medical school students, November 8. Mr. Leslie C. Frank, senior sanitary engineer, U. S. Public Health Service, lectured on milk, November 15.

Programs for Interns

The Evangelical Deaconess Hospital, Brooklyn, is holding a series of intern training programs. For the second program December 12 discussions were held on infections of the hand, psychology of bedside manner and multiple myelomas complicated by purpura haemorrhagica.——The Manhattan Eye, Ear and Throat Hospital, New York, is presenting a series of evening lectures in ophthalmology to the resident staff.

Museum of Medical History

Plans are under way to establish a medical history museum at the Wayne University College of Medicine, Detroit. A request has been made for books, instruments, letters, account books, manuscripts and diaries or any other material that will help make up a historical medical collection. Additional information may be obtained from Dr. William J. Stapleton Jr., associate dean and professor of jurisprudence, ethics and economics at the medical college.

Massachusetts Personals

Dr. Otto Krayer, associate professor of pharmacology at Harvard University Medical School, Boston, has been appointed to the chair of pharmacology at Peiping Union Medical College, China, beginning Sept. 1, 1939.

Frederic L. Wells, Ph.D., head psychologist of the Boston Psychopathic Hospital since 1921, has been appointed psychologist to the department of hygiene of Harvard University.